Placerville Drive Bicycle and Pedestrian Facilities Project & Placerville Drive Bridge Project
Placerville, El Dorado County, California

Draft Drainage Report



Prepared for: City of Placerville *Prepared By: HDR*

October 2025

Placerville Drive Bicycle and Pedestrian Facilities Project &
Placerville Drive Bridge Project
Placerville, El Dorado County, California

Draft Drainage Report

Submitted to:
City of Placerville

This report has been prepared by or under the supervision of the following Registered Engineer. The Registered Civil Engineer attests to the technical information contained herein and has judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

_____
Chris Sewell, P.E.
Registered Civil Engineer

_____
Date

October 2025

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Executive Summary

The City of Placerville (City) proposes to improve and increase bicycle and pedestrian interconnectivity within the city of Placerville along Placerville Drive and Green Valley Road. The proposed Placerville Drive Bicycle and Pedestrian Facilities Project (Project) is located along Placerville Drive approximately 0.5 miles north of United States Highway 50 (US 50), within the western portion of the city of Placerville. The improvements would consist of constructing up to approximately 12,000 linear feet of sidewalks and 12,000 linear feet of Class II or Class IV bicycle facilities along Placerville Drive. The proposed Project would also construct up to approximately 2,000 linear feet of sidewalks and Class II bicycle facilities along Green Valley Road, between Placerville Drive and Mallard Lane. Additionally, improvements may be made to multiple El Dorado Transit bus stops within the Project limits.

The City also proposes to replace the existing Placerville Road bridge crossing Hangtown Creek (Existing Bridge No. 25C0029) with a new bridge, which will accommodate the adjacent roadway facilities. The Placerville Drive at Hangtown Creek Bridge Replacement Project (Project) is located in Placerville within El Dorado County, approximately 0.7 miles (mi) west of the Placerville Drive undercrossing.

The general land use in the Project vicinity consists of commercial, residential, and business park uses. The existing roadway is classified as a “Minor Arterial Road” and accommodates an Average Daily Traffic (ADT) between 11,000 and 15,000 vehicle trips per day.

The bicycle/pedestrian improvements of the Project are funded through a combination of Congestion Mitigation and Air Quality Improvement Program (CMAQ), Active Transportation Program (ATP), and local funds. The proposed bicycle and pedestrian improvements would also be designed to meet current applicable City, American Association of State Highway and Transportation Officials (AASHTO), and California Department of Transportation (Caltrans) design standards. The bridge replacement portion of the Project is funded by the Highway Bridge Program (HBP) and local funds. A total of 37 culverts were observed to be in conditions that warrant rehab or replacement.

Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
APC	Alternative Pipe Culvert
BMP	best management practice
Caltrans	California Department of Transportation
City	City of Placerville
CMAQ	Congestion Mitigation and Air Quality
CN	Curve Number
DI	Drainage Inlet
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
HEC-HMS	Hydrologic Engineering Center- Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center- River Analysis System
HSG	Hydrologic Soil Group
MAP	Mean Annual Precipitation
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
Project	Placerville Drive Bicycle and Pedestrian Facilities
RCP	Reinforced Concrete Pipe
RSP	Rock Slope Protection
SCS	Soil Conservation Services
Tc	Time of Concentration
US 50	US Highway 50
USDA	United States Department of Agriculture
USGS	United States Geological Survey

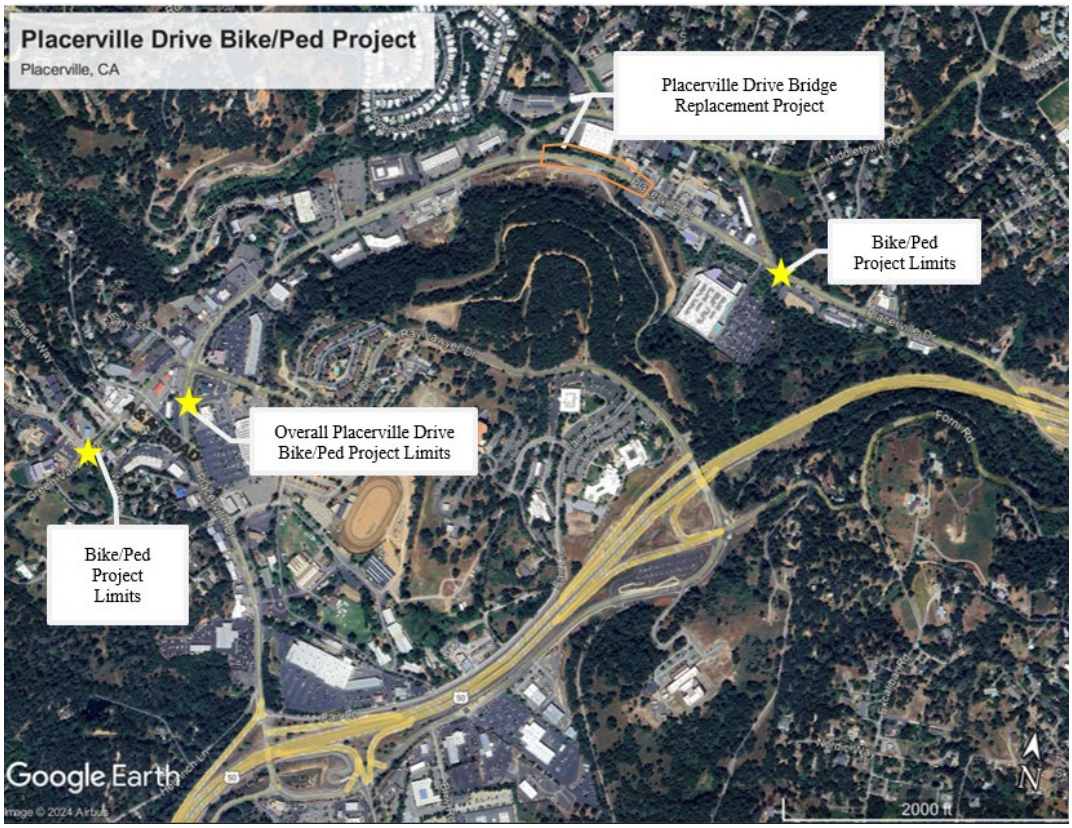
1 INTRODUCTION

1.1 Project Description

The City of Placerville (City) proposes to improve and increase bicycle and pedestrian interconnectivity within the city of Placerville along Placerville Drive and Green Valley Road. The proposed Placerville Drive Bicycle and Pedestrian Facilities Project (Project) is located along Placerville Drive approximately 0.5 miles north of United States Highway 50 (US 50), within the western portion of the city of Placerville (Figure 1). The improvements would consist of constructing up to approximately 12,000 linear feet of sidewalks and 12,000 linear feet of Class II or Class IV bicycle facilities along Placerville Drive. The proposed Project would also construct up to approximately 2,000 linear feet of sidewalks and Class II bicycle facilities along Green Valley Road, between Placerville Drive and Mallard Lane. Additionally, improvements may be made to multiple El Dorado Transit bus stops within the project limits.

The bridge replacement portion of the project would remove the existing functionally obsolete concrete bridge for Placerville Drive over Hangtown Creek and replace it with a new concrete bridge designed to current structural and geometric standards that would provide adequate, reliable, and safe service for vehicular, pedestrian, and bicycle traffic.

Figure 1. Project Vicinity Map



Source: Google Earth, 2024

Figure 2. Project Location Map



Source: Placerville Municipal Services Review (2017)

1.1.1 Exiting Conditions

Currently the Project site along Placerville Drive consists of limited and intermittent sidewalk facilities, and sidewalk facilities are completely absent along Green Valley Road. The Project site also includes intermittent existing Class II bicycle facilities along Placerville Drive between Armory Drive and US Highway 50 (US 50). Bicycle facilities are absent along Placerville Drive between Ray Lawyer Drive and Armory Drive. Pedestrian and bicycle access along Placerville Drive and Green Valley Road within the Project site is hampered by narrow shoulders, numerous driveways, intersections, pavement transitions, utilities, walls, fences, landscape features and drainage structures. At several locations within the Project site along Placerville Drive and Green Valley Road, privately owned fences, walls, and landscaping encroach into City owned right-of-way. Existing land uses adjacent to the Project site include commercial, residential, and business park developments that have multiple accesses along Placerville Drive and Green Valley Road. These accesses would need to be maintained during and after construction.

1.1.2 Proposed Conditions

The Project would establish sidewalk and bicycle facilities along both sides of Placerville Drive between Ray Lawyer Drive and Cold Springs Road and would establish sidewalk facilities along one or both sides of Green Valley Road between Placerville Drive and Mallard Lane. The sidewalk improvements would include the construction of up to approximately 12,000 linear feet of the new sidewalk within the Placerville Drive and Green Valley Road corridors. The bicycle facility improvements would include the construction of up to approximately 12,000 linear feet of new Class II or Class IV bicycle facilities along Placerville Drive, and up to approximately 2,000 linear feet of new Class II bicycle facilities along Green Valley Road. The Project would install sidewalks, curbs, gutters, Americans with Disabilities Act (ADA) curb access ramps, bike lanes, and incidental drainage improvements. Existing storm drain systems would be maintained and additional storm drain inlets and curb cut drains would be installed to convey surface drainage. Trees that encroach on City right-of-way within the Project site would be trimmed and tree removal is anticipated to complete construction of the Project. Tree removal would be coordinated with the City and would be conducted according to local, state, and federal standards. Work within the existing roadway is limited to removal of portions of the existing shoulder and therefore would only require minimal amounts of pavement reconstruction, and mostly only minor grind and overlays with isolated dig outs. The Project would also include the construction of multiple retaining walls and barrier curbs within the Placerville Drive corridor and relocation of existing utilities that conflict with proposed improvements. Surface drainage patterns within the Project area would generally remain unchanged, and existing storm drain inlets would be adjusted as necessary.

The Project would be constructed primarily within the existing City right-of-way, and would require right-of-way acquisitions, easements, or permits to enter and construct from up to 30 parcels. Temporary construction easements and/or rights to enter and construct would be required to construct the retaining walls and driveway conforms. Several of the

adjacent parcels have encroached into City right-of-way, and private retaining walls, signage, and landscaping that conflict with the proposed bicycle and sidewalk facilities may need to be removed and/or relocated as necessary.

1.2 Project Purpose and Need

The purpose of the Project is to complete the bicycle and pedestrian facilities within the Placerville Drive Corridor. The Project is the next step to create and maintain a safe and convenient system of bicycle and pedestrian improvements within the City. When completed, the Project would provide direct bicycle and pedestrian access to key destinations within the City, be a critical component of an overall low-stress bicycling network, support development, and address the needs of one of the City's most heavily traveled transportation corridors.

The Project is needed as the Placerville Drive corridor is comprised of discontinuous sidewalks and limited Class II bike lanes throughout its length. Currently, pedestrian and bicycle access along Placerville Drive and Green Valley Road are affected by limited shoulders, numerous driveways, intersections, pavement transitions, utilities, walls, fences, landscape features, and drainage structures. The Project would improve pedestrian and bicyclist connectivity within the western portion of the City of Placerville to the neighborhoods and Downtown Placerville Area south of US 50.

The bridge has an overall Sufficiency Rating (SR) of 60.4 and has been previously identified as functionally obsolete due to substandard deck width and therefore is eligible for rehabilitation or replacement under HBP guidelines.

The purpose of the proposed project is to remove the existing functionally obsolete concrete bridge and replace it with a new concrete bridge designed to current structural and geometric standards that would provide adequate, reliable, and safe service for traffic. The new bridge would be designed to improve safety for vehicular, pedestrian, and bicycle traffic along Placerville Drive at the project site.

1.3 Key Tasks

The purpose of this report is to provide a summary and analysis of the existing and proposed drainage conditions.

1.4 Existing Facilities

The bicycle/pedestrian Project is located within the City of Placerville in El Dorado County. Based on the 100% City of Placerville, Engineering Department Project Plans for Placerville Drive Bicycle and Pedestrian Facilities, CIP #41816 (R.E.Y Engineers Inc., August 4, 2025) the following existing features were noted. (See Appendix A).

The bridge replacement portion of the Project is also located within the City of Placerville in El Dorado County. Based on the 100% City of Placerville, Engineering Department Project Plans for Placerville Drive Bridge Replacement, CIP #41816 (Dewberry Inc., August 4, 2025) the following existing features were noted. (See Appendix A).

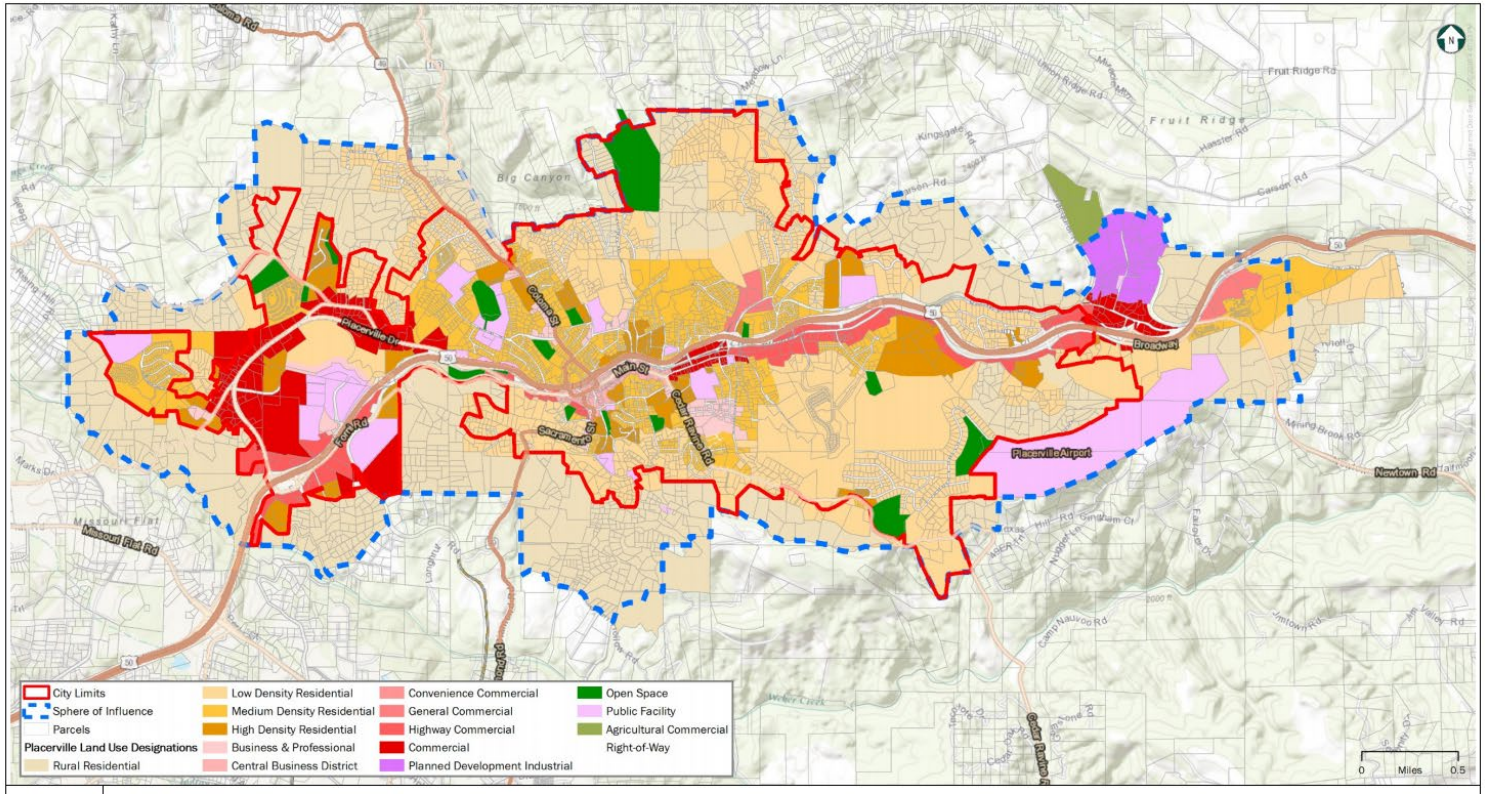
1.4.1 Existing Roadways

The Project area extends along Placerville Drive from Ray Lawyer Drive to Cold Springs Road and on Green Valley Road from Mallard Lane to Placerville Drive. Placerville Drive is primarily a three-lane facility within the study area with one lane in each direction and a center two-way left-turn lane. Green Valley Road is two-lane roadway within the Project limits. The proposed project would be constructed primarily within the existing City right-of-way but permanent acquisitions and temporary construction easements and/or permissions to enter and construct are anticipated to be needed.

1.4.2 Existing Development

Land use within the Project (See Figure 3) extents is predominately residential (Rural Residential and Low Density Residential), and commercial (Highway Commercial and Central Business District).

Figure 3. Land Use Map (City of Placerville)



Source: Placerville Municipal Services Review (2017)

1.4.3 Existing Utilities

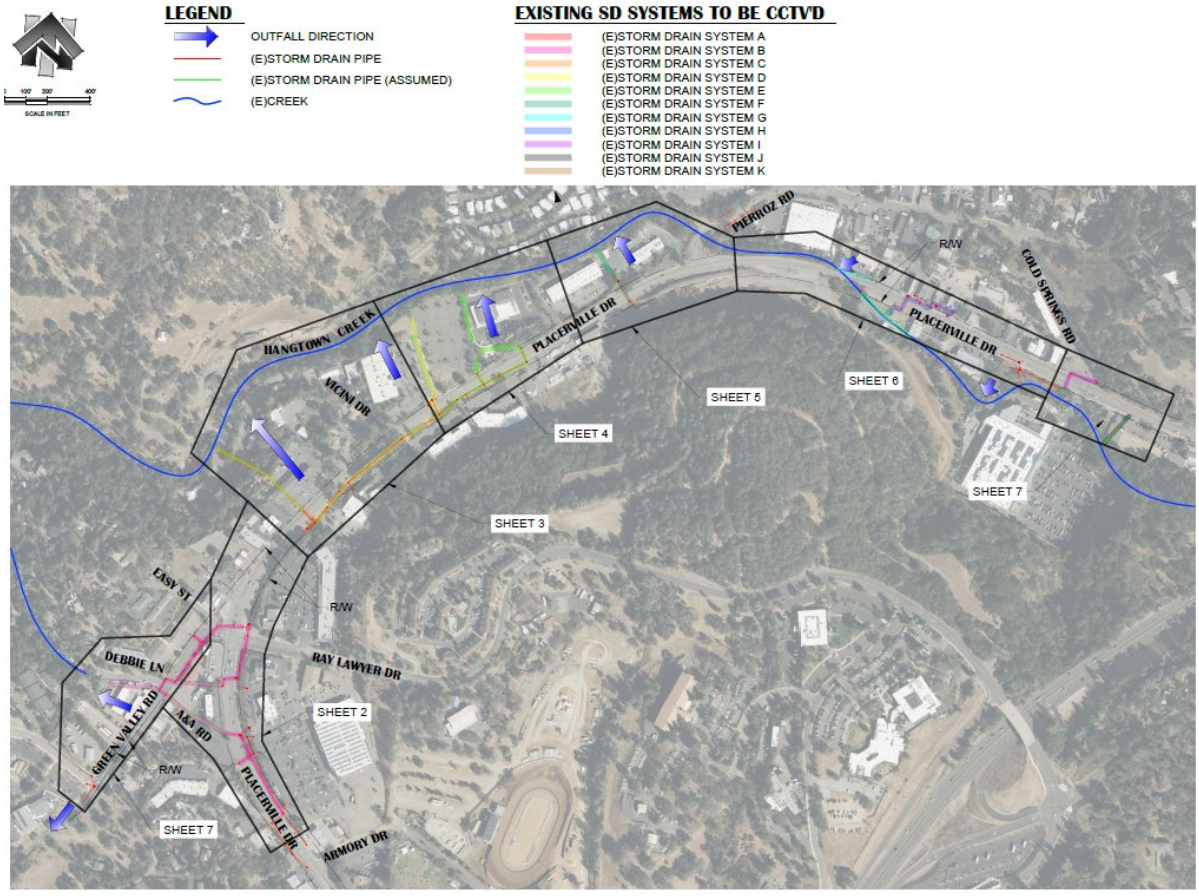
Both existing underground and overhead utilities are present throughout the Project site. Anticipated underground utilities include communication, water, sewer, and electrical conduit. Much of the anticipated underground utility work along Placerville Drive and Green Valley Road involves adjusting utility boxes, meters, and service lines for adjacent properties. Fire hydrant relocations are also anticipated.

Overhead utilities along the Project site include communication and electrical distribution lines. The lines primarily run parallel along the northern side of Placerville Drive and Green Valley Road but frequently run perpendicular to the roadways to provide service to the residents and commercial developments. Utility poles, and electrical utility lines are also located along the southern edge of Placerville Drive, east of Hangtown Creek. Both overhead communication lines and electrical distribution lines would need to be relocated prior to construction if they are determined to conflict with construction activities. There is a potential for permanent utility pole and traffic signal pole relocations with this Project.

1.4.4 Existing Drainage

The existing drainage systems within the Project limits are composed of cross culverts, inlets, vegetated ditches, and roadside asphalt concrete gutters. These existing drainage systems have been documented through closed-circuit television (CCTV) inspection performed by 360 Pipeline Inspections. The Inspection Report provided by 360 includes inspection photos and videos, existing culvert information, and conditions for a total of 72 storm drains (360 Pipeline Inspections, 2024). To see a map of the existing drainage systems inspected see Figure 4.

Figure 4. Map of Storm Drains Systems CCTV'd



Source: R.E.Y, 2024

1.4.5 Drainage Design Issues

During the 2022-2023 winter storms, Placerville Drive experienced localized flooding causing safety concerns and traffic disruptions. The City is concerned with the aging storm drain infrastructure along Placerville Drive, Green Valley Road, and A&A Road. The existing systems that have been identified as deficient have been documented in the Culvert Recommendation Report (2024).

1.5 Drainage Design Criteria

The drainage design for the Project will comply with the *County of El Dorado Drainage Manual* (Adopted March 14, 1995, Revised 2020).

- Hydrology calculations have been performed based on Tables 2 and 3 of the *County of El Dorado Drainage Manual* (Revised 2020). The Rational Method had been used to analyze the curve number (CN). Procedures for computing the Rational Method, CNs, Runoff coefficient (C) complied with this manual.

- The discharge in simple or compound street sections can be determined from Charts 3 and 4 of Drainage of Highway Pavements, (Federal Highway Adminstration,1984).
- Curb inlets and drain inlets will be designed to comply with Caltrans Standard Plans (2025).
- Streets and their associated underground drainage pipes must convey the 100-year runoff.
- Commercial roadways shall maintain flows at or below the top of curb and shall not extend out into the roadway a distance equal to two-thirds of the half-width when conveying the 10-year peak flow. The maximum distance between street drainage inlets would be 500 feet based on the County criteria.
- Manning's *n* values of 0.013 will be used during hydraulic calculations for reinforced concrete pipes and plastic pipes, and values of 0.024 will be used for corrugated steel pipes. Alternative pipe culverts (APC) will be designed using a Manning's *n* value of 0.024.
- The minimum main line pipe size would be 18-inch diameter. For short laterals and inlet connectors, the minimum diameter would be 12 inches.

1.6 Design Plans

HDR reviewed both the 100% improvement plans and drawings (R.E.Y. Engineers Inc., August 4, 2025) for the Placerville Drive Bicycle and Pedestrian Facilities Project and the Placerville Drive Bridge Replacement Project (Dewberry, August 4, 2025). (see Appendix A).

1.7 Soil Type and Vegetation

Soil data was obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) *Web Soil Survey* application (see Appendix B). Table 2 shows the hydrologic soil groups (HSG) and the different soil types within the Project limits. The predominant HSG throughout the project area is HSG C. Group C Soils have a slow infiltration rate when thoroughly wet. They consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. Group C soils have a slow rate of water transmission.

Table 1. Hydrologic Soil Group

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group	Acres in AOI	Percentage of AOI
BhC	Boomer gravelly loam, 3 to 15 percent slopes	C	154.3	13.9%
BhD	Boomer gravelly loam, 8 to 35 percent slopes, dry	C	216.0	19.4%
BkE	Boomer very rocky loam, 30 to 50 percent slopes	C	200.9	18.0%
CoC	Cohasset cobbly loam, 3 to 15 percent slopes	B	23.8	2.1%
DfC	Diamond Springs Very fine sandy loam with a slope from 9 to 15 percent	C	215.5	19.4%
DfD	Diamond Springs Very fine sandy loam with slope of 15 to 30 percent	C	126.7	11.4%
DgE	Diamond Springs very rocky very fine sandy loam with 3 to 50 percent slopes	C	140.6	12.9%

Source: USDA

2 HYDROLOGY

2.1 Estimating Design Discharge

The Rational Method was used to estimate the design discharge. The equation for the Rational Method is:

$$Q = C\,i\,A$$

Where:

Q = design discharge (cubic feet per second [cfs])
C = runoff coefficient
i = average rainfall intensity for the selected frequency and for a duration equal to the time of concentration (inches per hour [in./hr])
A = drainage area (acres [ac])

The coefficient of runoff was determined using *County of El Dorado Drainage Manual,* Figure 2.5.1 Runoff Coefficients for 10-yr event below 1,640' NAVD. The on-site and off-site watershed maps are found in Appendix C. The average rainfall intensity was determined from *County of El Dorado Drainage Manual,* Table A2.2.10 Rainfall Intensity with a return period of 10 years. The intensity for the project was determined to be 3.49 inches per hour.

To estimate the design discharge for flow entering the system along A and A Road and discharging along Green Valley Rd., we referenced StreamStats created by the United States Geological Survey. On StreamStats the flow for this drainage basin is 75.8 (cfs). See Appendix C for the stream stats print out with the watershed delineation and design discharge. For a more precise flow calculation, additional modeling would be necessary.

Along Cold Springs Road the estimated discharge to enter the proposed drainage system determined from the *Middletown Apartments Hydrology Report* (December 14, 2023) is 5.2 cubic feet per second. This flow will enter DI 31B at station 43' Lt 85+95.48 and is reflected in the hydraulic grade line calculations.

For these two sections the runoff values are shown in Table 2 calculated using the rational method and manually input into Hydraflow. The rest of the project uses the integrated calculation in Hydraflow to determine the flows and can be found in Appendix D.

Table 2. Runoff Calculations

Inlet ID	Onsite Watershed	Offsite Watershed	C	Intensity (in/hr)	Q (cfs)
DI10	0.58	0.00	0.95	3.49	1.92
DI8	0.12	0.19	0.58	3.49	0.63
DI7	0.16	0.39	0.52	3.49	1.01
DI9	0.10	0.00	0.95	3.49	0.33
SBC7500	0.30	0.00	0.95	3.49	0.99
DI6	0.04	0.00	0.95	3.49	0.13
DI6a	0.13	0.00	0.95	3.49	0.43
DI5	0.28	0.12	0.77	3.49	1.07
DI3	0.00	0.08	0.35	3.49	0.10
DI4	0.17	0.00	0.95	3.49	0.56
DI2	0.00	1.07	0.35	3.49	1.31
DI11	0.00	1.07	0.35	3.49	1.31
DI31A	0.46	4.63	0.40	2.23	4.59
DI31	0.04	0.00	0.95	3.49	0.13
DI31B	0.00	0.72	0.35	3.49	6.08
DI30	0.25	0.03	0.89	3.49	0.87
DI28	0.25	0.00	0.95	3.49	0.83
DI29	0.65	0.12	0.86	3.49	2.30
DI34	0.56	0.00	0.95	3.49	1.86
DI33	0.00	0.07	0.35	3.49	0.09

3 ON-SITE ROADWAY DRAINAGE

3.1 Hydraulic Grade Line Calculations

Hydraulic grade line calculations for the existing and proposed on-site drainage systems were performed for the 10-year storm event within the Project limits using AutoCAD Civil 3D Hydraflow. These calculations can be found in Appendix D.

The system along Placerville Drive at Station 57+00 fails to pass hydraulic grade line calculations due to an undersized 12” outlet culvert located outside the right-of-way between SDDI57 and SDADP57. This existing deficiency will remain, as the culvert is outside of the right-of-way and as the project will not be increasing flow in this section and will not affect the existing drainage patterns.

3.2 Gutter, Curb Cuts, and Inlet Capacity

Grate interception, bypass, and gutter spread calculations for this Project were completed in accordance with the *El Dorado County Drainage Manual* (2020). The calculations are included in Appendix E, with contributing watershed areas detailed in Appendix C. The maximum allowable gutter spread during a 10-year design storm is limited to two-thirds of the street half-width. Across the Project, the available flooded width varies by location and is measured from the gutter flow line to the two-thirds point of the half-width. For inlets and curb cuts along turn pockets, the flooded width was conservatively limited to half the width of the outer lane, following local design standards.

For calculations of the capacity for the ditch along Placerville Drive at station 39 ft right station 75+87.31 to 40.93 ft right station 76+87.81, see Appendix F. These calculations summarize the capacity of the proposed ditch shown in Appendix A.

3.3 Culvert Recommendations

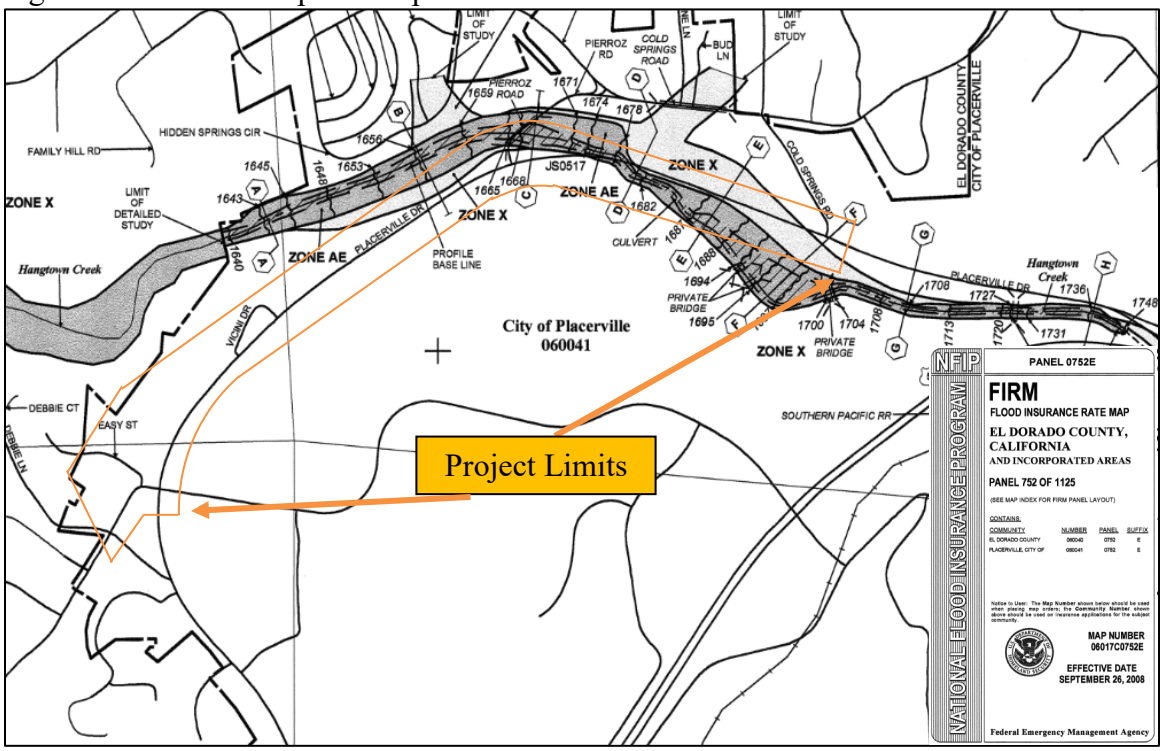
The recommendations that HDR has provided for the impacted drainage systems that had been inspected by CCTV can be found in the Culvert Recommendation Report (2024). In the Culvert Recommendation Report (2024), it identifies the culverts requiring immediate attention, which may fail in 0 to 5 years and poor condition storm drains, which may fail in 5 to 10 years. Of the 72 culverts that were inspected, 360 Pipeline Inspections noted 37 storm drains showed either requiring immediate attention to being in poor condition. There are 16 of these culverts within the right-of-way of the City and 21 outside. The Culvert Recommendation Report provides a recommendation for these culverts for both a short-term fix to provide 10 years of service life and a long-term recommendation for more than 10 years. Along with the recommendations HDR has provided an estimated cost for each culvert within the right-of-way of the City.

4 FLOODPLAIN INFORMATION

4.1 Federal Emergency Management Agency Data

El Dorado County and Incorporated Areas National Flood Hazard Layer FIRMette 06017C0752E was used to determine floodplain designation in the Project area. Figure 5 shows the floodplain designation in this project. The FIRM shows that the Project sites is located within Zone AE and X with base flood elevations (BFE).

Figure 5. FEMA Floodplain Map



Source: FEMA

REFERENCES

Volume V *of El Dorado County Design and Improvement Standard Manual*. (Adopted March 14, 1995, Revised 2007).

Federal Emergency Management Agency (October 26, 2008). Flood Insurance Rate Map for El Dorado County, California and Incorporated Areas. Map Number 06017C0752E.

Federal Emergency Management Agency. *Flood Insurance Study for El Dorado County, California and Incorporated Areas*.

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United States Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey.

100% City of Placerville, Engineering Department Project Plans for Placerville Drive Bicycle and Pedestrian Facilities, CIP #41816 (R.E.Y Engineers Inc. August 4, 2025)

100% City of Placerville, Engineering Department Project Plans for Placerville Drive Bridge Project, (Dewberry. August 4, 2025)

Middletown Apartments Hydrology Report (December 14, 2023)

Appendix A 95% Improvement Plans

NOTES:

1. FOR ACCURATE RIGHT-OF-WAY DATA, CONTACT THE CITY OFFICE.
2. INSTALL TEMPORARY HIGH VISIBILITY FENCE PRIOR TO ANY GROUND DISTURBING ACTIVITIES.

LEGEND:

TSF

TFR

THVF

TC-1: TEMPORARY CONSTRUCTION ENTRANCE (TYPE 1)

SC-1: TEMPORARY SILT FENCE

SC-4: TEMPORARY CHECK DAM (TYPE 2)

SC-5: TEMPORARY FIBER ROLL

SC-10: TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3A)

TEMPORARY HIGH-VISIBILITY FENCE

WASH

NS-3

VEC VEC

VEF VEF

VEM VEM

SDR SDR

WM-8: TEMPORARY CONCRETE WASHOUT

NS-3: PAVING AND GRINDING OPERATIONS

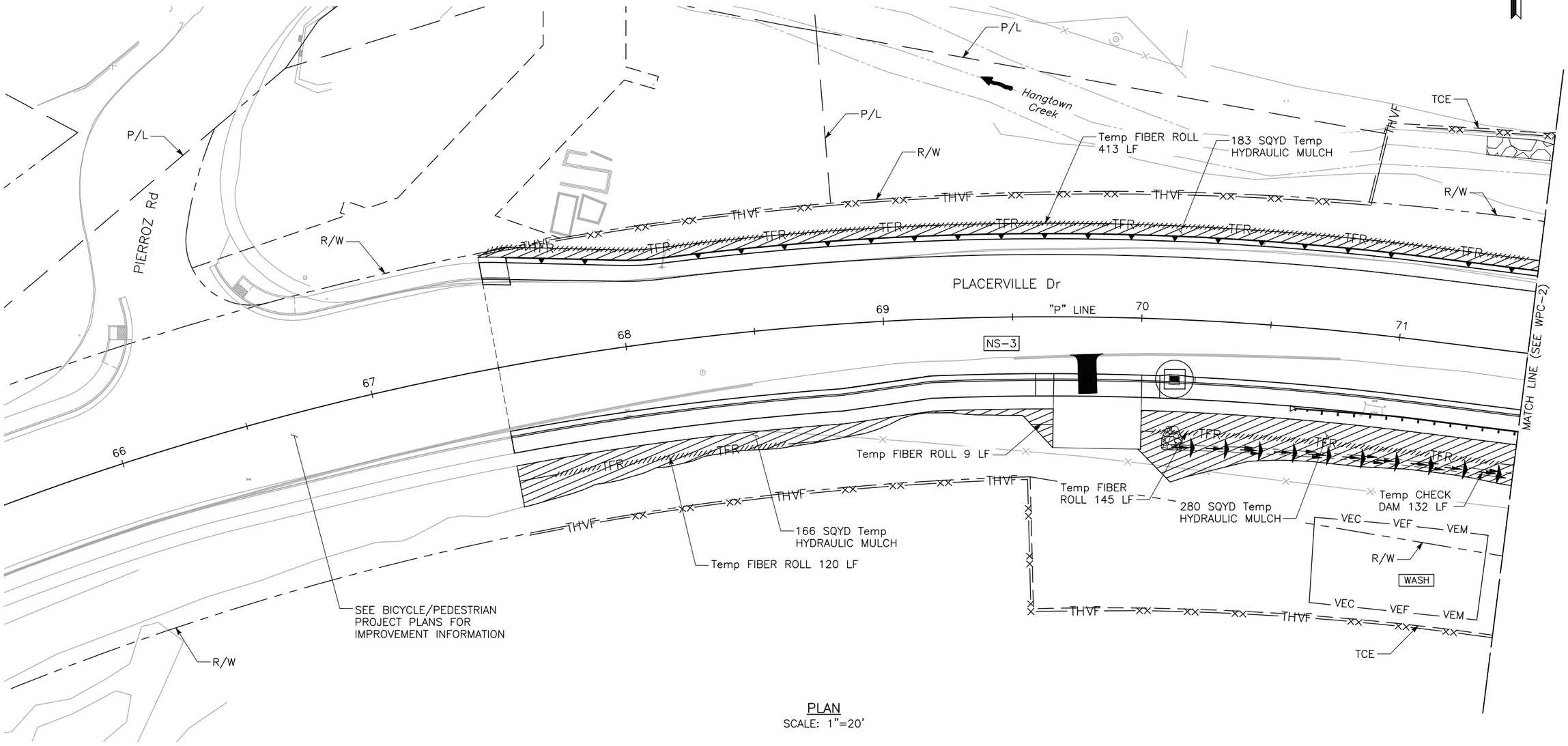
NS-8: VEHICLE AND EQUIPMENT CLEANING

NS-9: VEHICLE AND EQUIPMENT FUELING

NS-10: VEHICLE AND EQUIPMENT MAINTENANCE

NS-15: STRUCTURE DEMOLITION/REMOVAL OVER OR ADJACENT TO WATER

SS-3: TEMPORARY HYDRAULIC MULCH (BONDED FIBER MATRIX)



PLAN
SCALE: 1"=20'

APPROVED FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

WPC-1

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT

TEMPORARY WATER POLLUTION CONTROL PLAN
CITY OF PLACERVILLE
CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ASCHEF

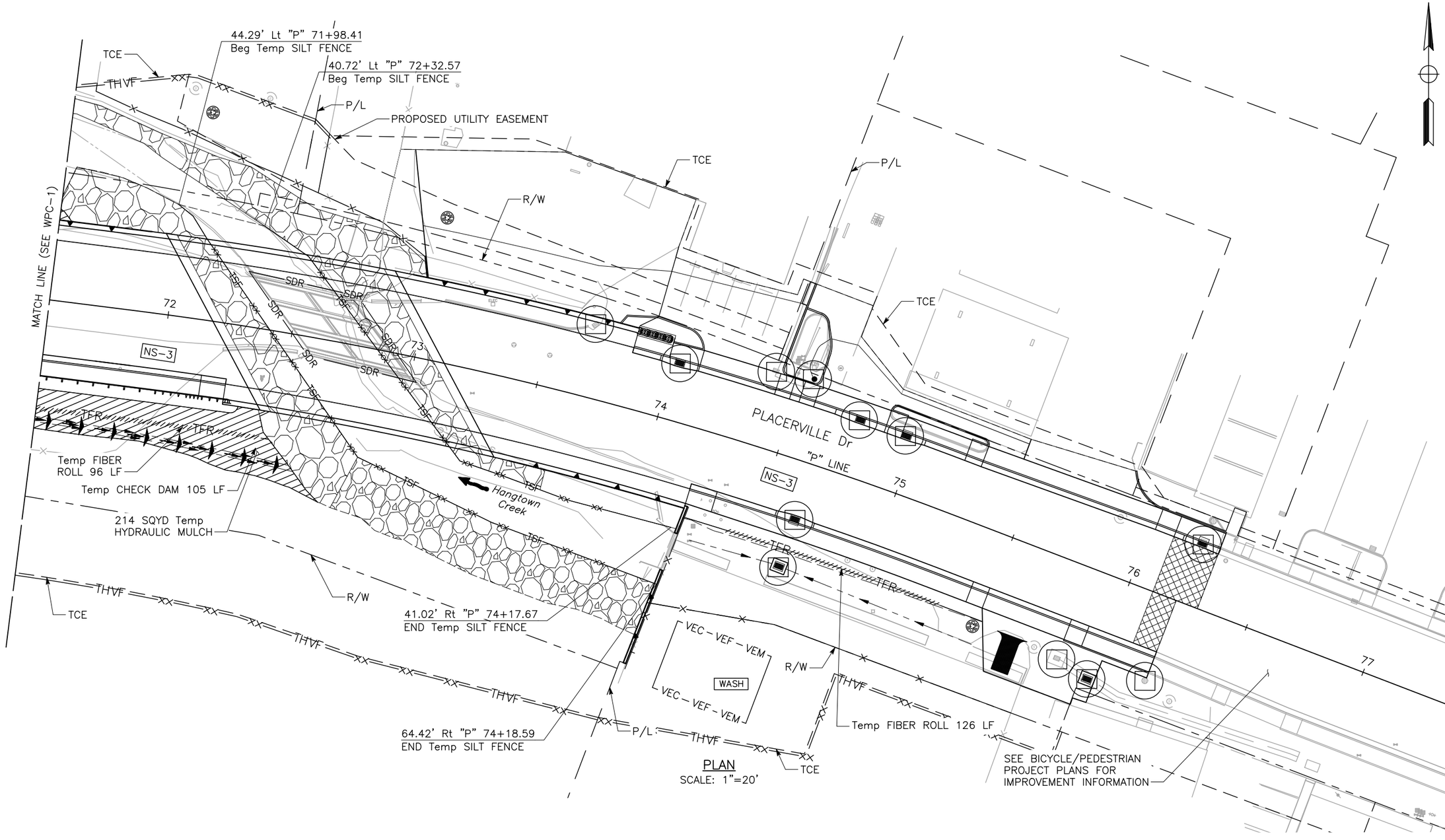
PROJECT NO.
CIP #41410
SHEET NO. C19 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

U:\18028 - Placerville Dr. Bicycle-Ped and Br. Repl - Ci Placerville\18028B Bridge Replacement\400 Project Design Files\420 Roadway & Civil\Plans\PLD-R-WPC.dwg Oct 09, 2025 - 8:26am jmayer

NOTE:

FOR ACCURATE RIGHT–OF–WAY DATA, CONTACT
THE CITY OFFICE.



PLAN
SCALE: 1"=20'

APPROVED FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

WPC-2

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT

WATER POLLUTION CONTROL PLAN
CITY OF PLACERVILLE
CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ASOTER

PROJECT NO.
CIP #41410
SHEET NO. C20 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

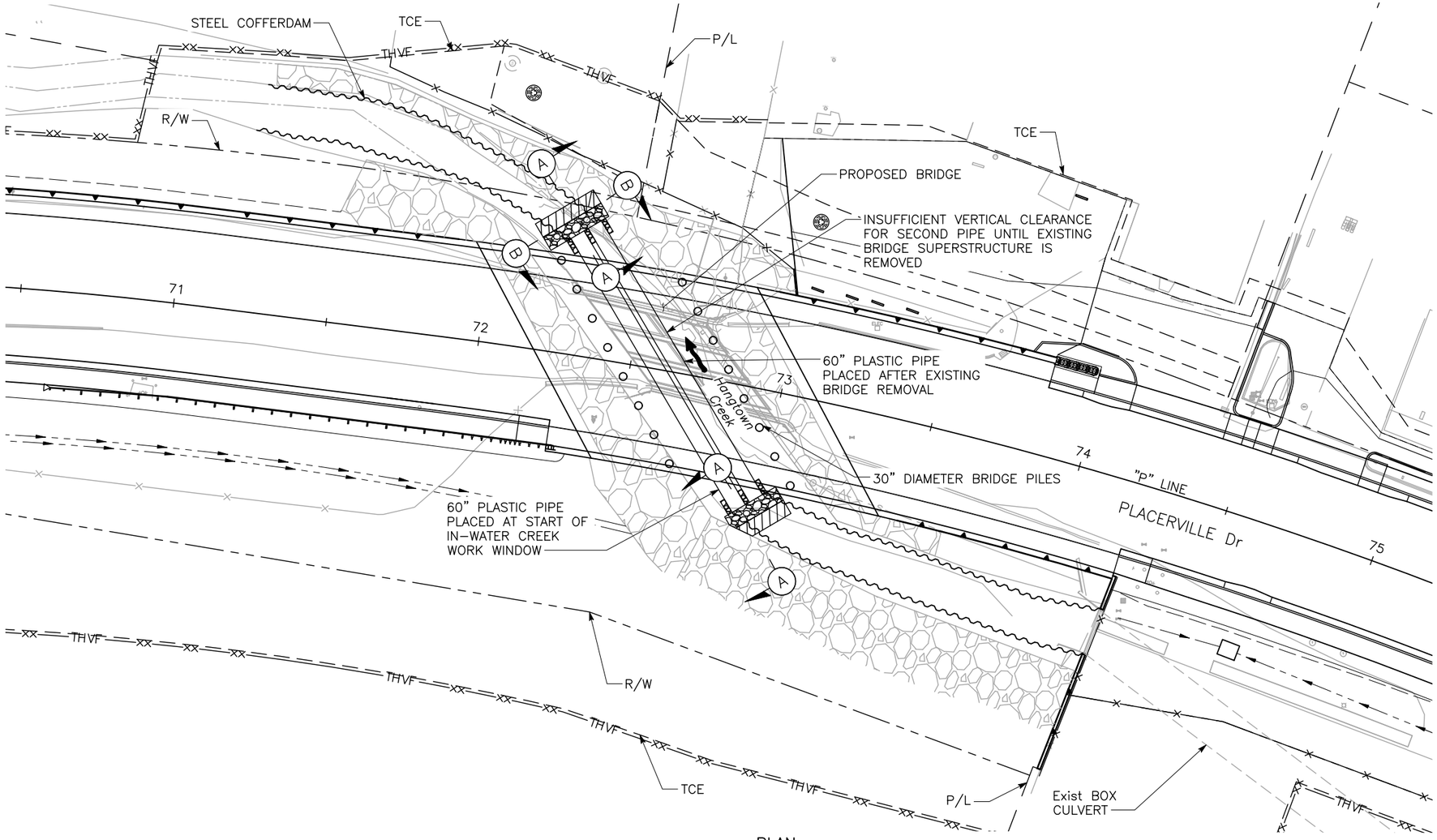
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NOTES:

1. FOR ACCURATE RIGHT–OF–WAY DATA, CONTACT THE CITY OFFICE.
2. THE INFORMATION ON THIS PLAN IS INTENDED TO BE USED AS A GUIDELINE FOR THE CONTRACTOR AND SUBCONTRACTORS TO INSTALL TEMPORARY CREEK DIVERSION DEVICES. THE CONTRACTOR SHALL PREPARE A CREEK DIVERSION PLAN INCLUDING THE CONSTRUCTION SEQUENCE, EQUIPMENT, MEANS AND METHODS REQUIRED FOR ERECTION AND REMOVAL OF THE DIVERSION SYSTEM. THE PLAN SHALL BE PREPARED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA AND THE PLAN SHALL BE SUBMITTED FOR ACCEPTANCE BY THE ENGINEER AND REGULATORY AGENCIES.
3. VERIFY PEAK FLOWS IN HANGTOWN CREEK TO ENSURE PIPE SIZES SHOWN ON THIS PLAN ARE ADEQUATE.
4. ALL PIPE TO PIPE CONNECTIONS TO BE WATERTIGHT.
5. ADJUST SAND BAG LOCATIONS IN THE FIELD TO ACCOUNT FOR FIELD CONDITIONS AS APPROVED BY ENGINEER.
6. VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
7. DETERMINE CLEARANCE OF SAND BAGS TO WORK AREA.
8. SEE SHEET WPC–4 FOR SECTIONS A–A AND B–B.

LEGEND

- R/W
- PROPERTY LINE (P/L)
- TCE
- THVF — TEMPORARY HIGH–VISIBILITY FENCE
- COFFERDAM (TEMPORARY GRAVEL BAG BERM)
- GRAVEL BEDDING
- FILTER MATERIAL WITH FILTER FABRIC UNDERNEATH
- STEEL COFFERDAM



PLAN
SCALE: 1"=20'

WPC-3

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

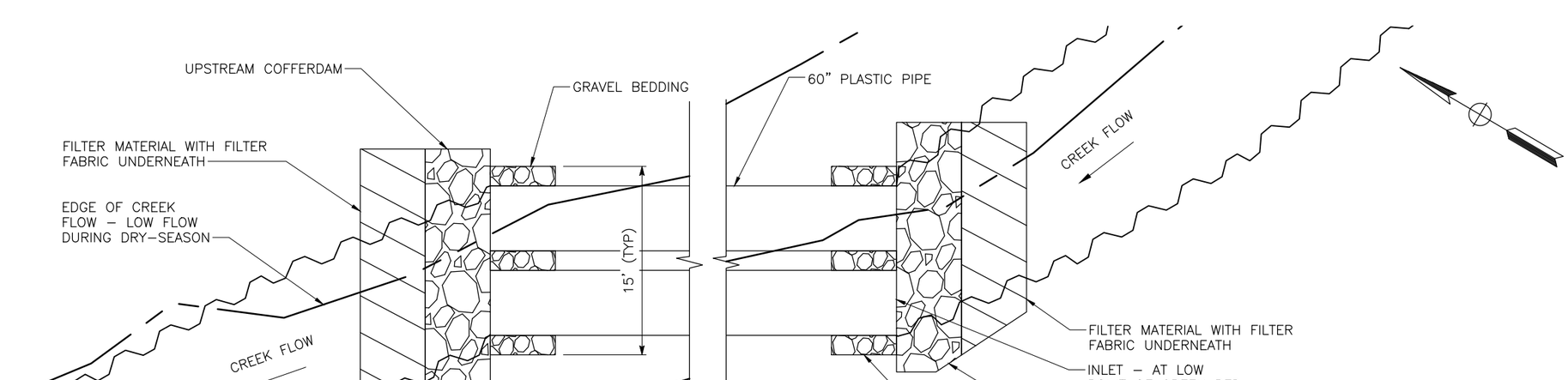
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
TEMPORARY CREEK DIVERSION PLAN
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ASORIA

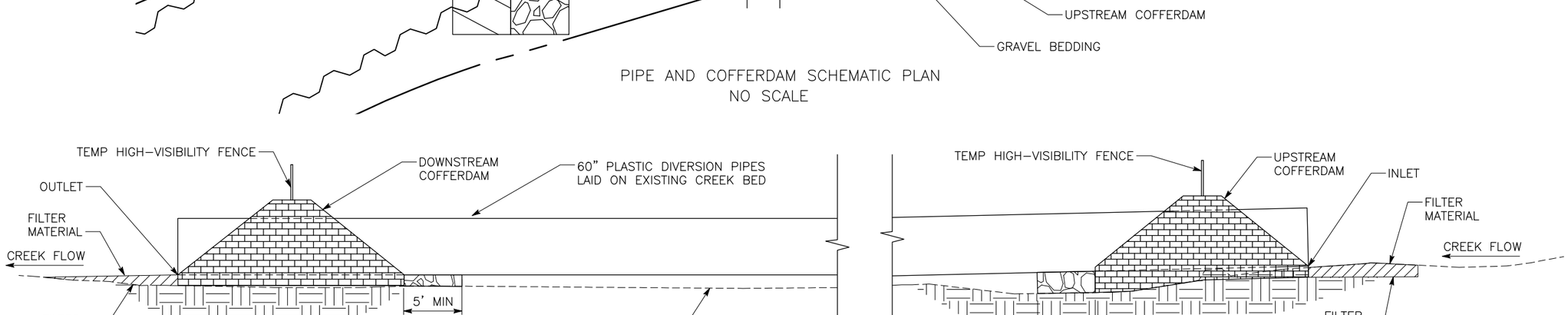
PROJECT NO.
CIP #41410
SHEET NO. C21 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

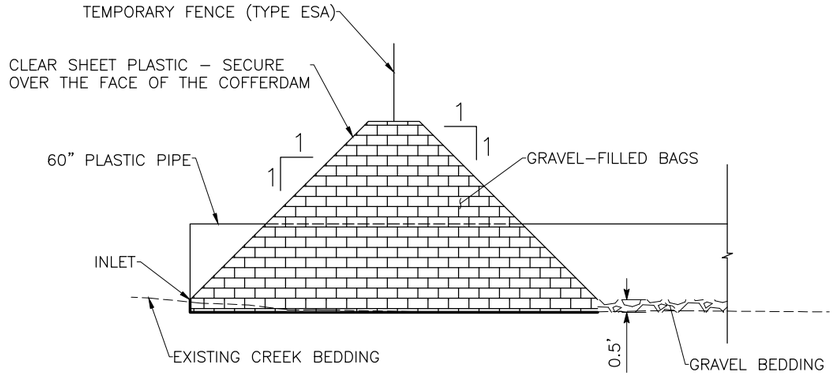
U:\18028 – Placerville Dr, Bicycle–Ped and Br. Repl – Ci Placerville\18028 Bridge Replacement\400 Project Design Files\420 Roadway & Civil\Plans\PLD–R–TWPC.dwg Oct 09, 2025 – 8:26am, jmayer



PIPE AND COFFERDAM SCHEMATIC PLAN
NO SCALE

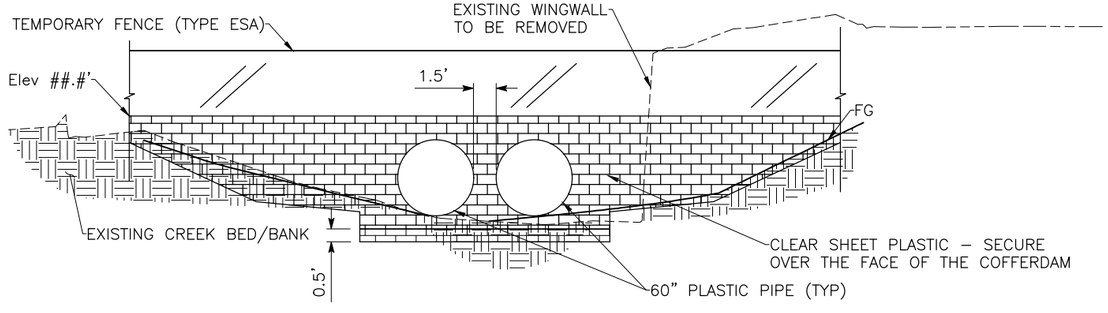


PIPE AND COFFERDAM SCHEMATIC PROFILE
NO SCALE



SECTION A–A

NO SCALE



SECTION B–B

NO SCALE

WPC-4

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

CITY OF PLACERVILLE

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT

TEMPORARY CREEK DIVERSION PLAN
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ASMITH

PROJECT NO.
CIP #41410
SHEET NO. C22 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

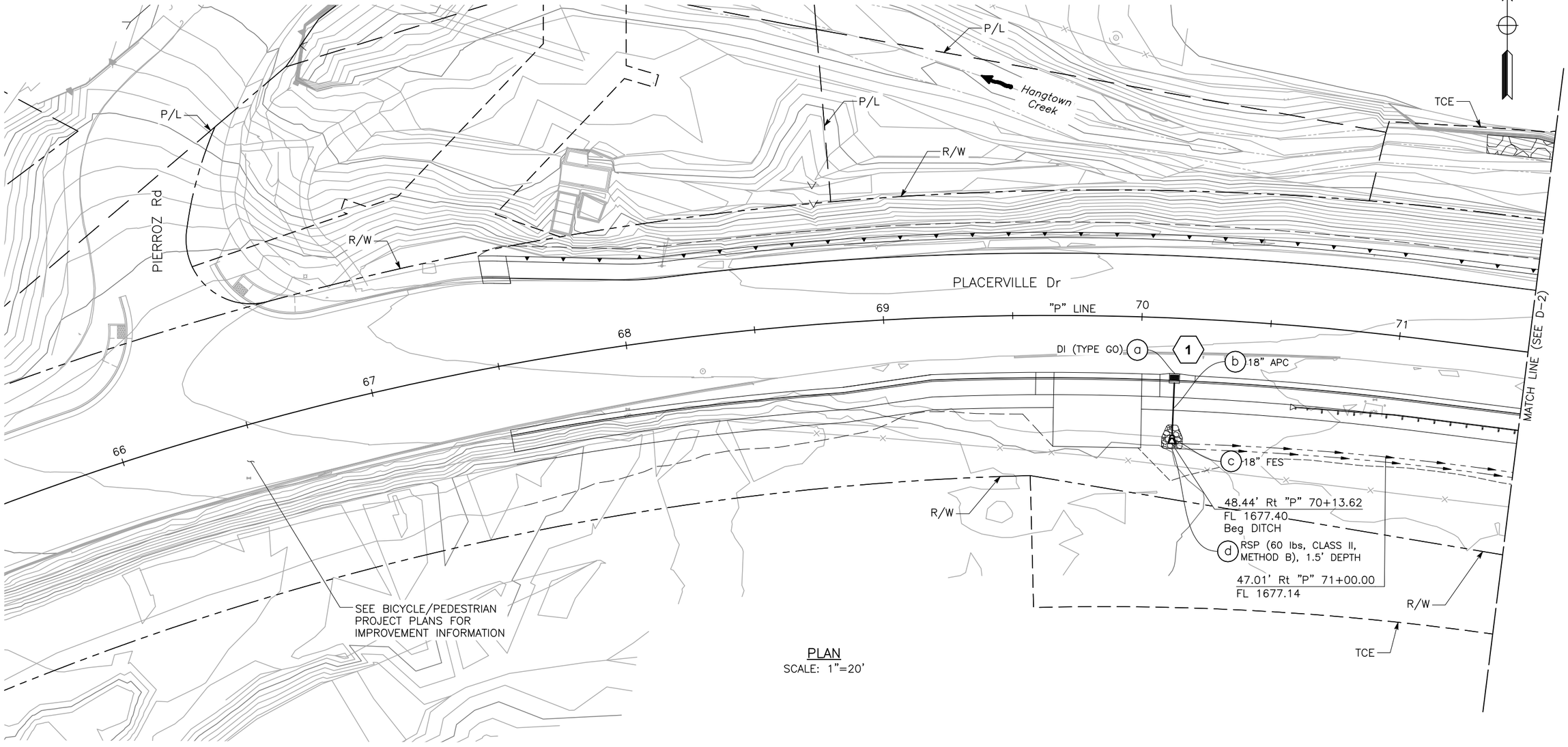
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NOTES:

1. FOR ACCURATE RIGHT–OF–WAY DATA, CONTACT THE CITY OFFICE.
2. VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION. SEE UTILITY PLAN FOR UTILITY INFORMATION.
3. VERIFY ALL EXISTING DRAINAGE STRUCTURES PRIOR TO FABRICATING ANY MATERIAL.
4. SEE COUNTY OF EL DORADO STANDARD DETAILS FOR STORM DRAIN MANHOLE AND PCC BACKFILL FOR SHALLOW TRENCH DETAILS AND INFORMATION.
5. SEE CALTRANS STANDARD PLAN DETAIL D73B, D73C, D73E, D73F, D73G, D74, D75B, D75C, AND D77B FOR DRAINAGE INLET, PIPE INLET, AND GRATE DETAILS.

LEGEND:

- (#) DRAINAGE SYSTEM No.
- (X) DRAINAGE UNIT
- ROCK SLOPE PROTECTION (RSP)
- CUT
- FILL
- DITCH FLOWLINE



PLAN
SCALE: 1"=20'

APPROVED FOR DRAINAGE WORK ONLY

D-1

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE PLAN
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ABOYES

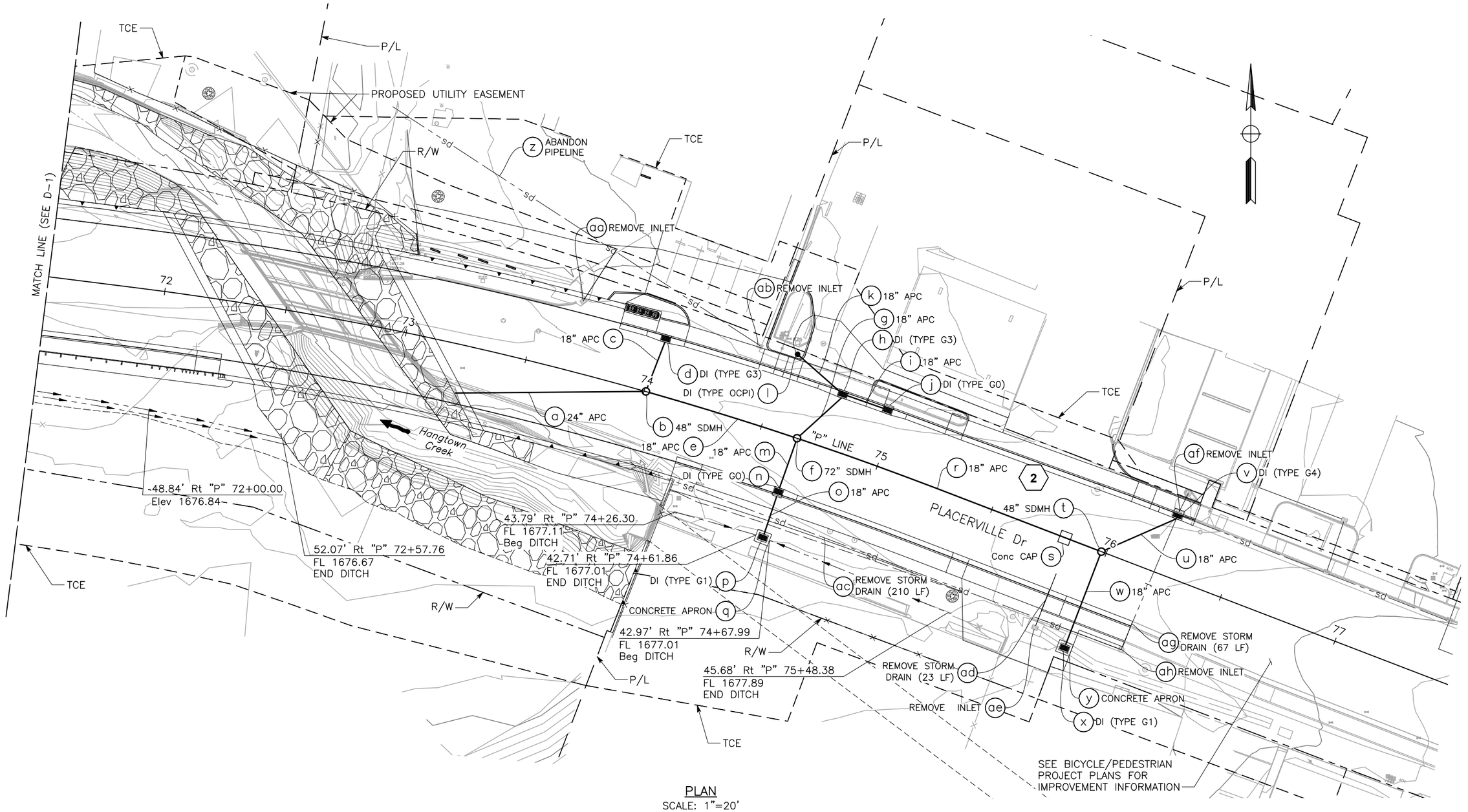
PROJECT NO.
CIP #41410
SHEET NO. C25 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

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NOTE:

FOR ACCURATE RIGHT–OF–WAY DATA, CONTACT THE CITY OFFICE.



PLAN
SCALE: 1"=20'

APPROVED FOR DRAINAGE WORK ONLY

D-2

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

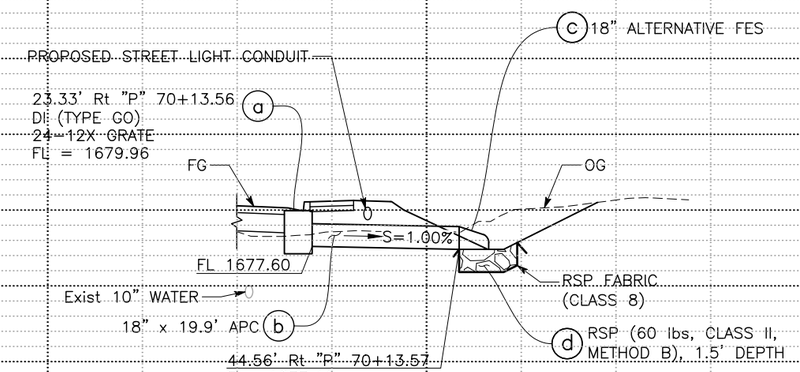
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE PLAN
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: AMAYES
DESIGNER: AMAYES
REVIEWER: ABOYES

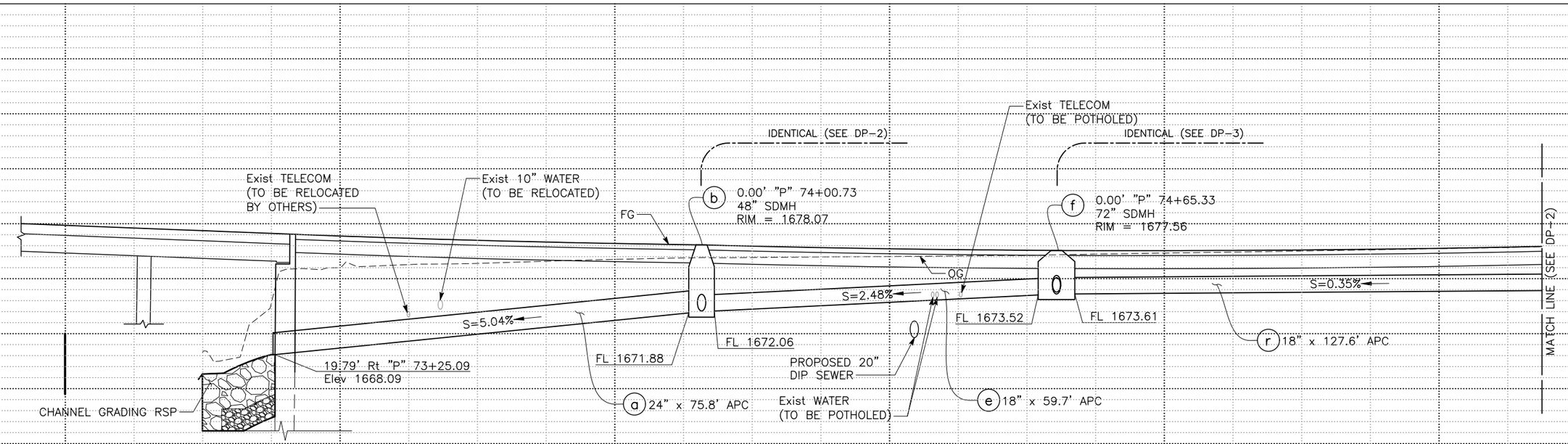
PROJECT NO.
CIP #41410
SHEET NO. C26 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

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DRAINAGE SYSTEM No. 1



DRAINAGE SYSTEM No. 2

SCALE: Horiz 1"=10'
Vert 1"=5'

DP-1

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

CITY OF PLACERVILLE

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

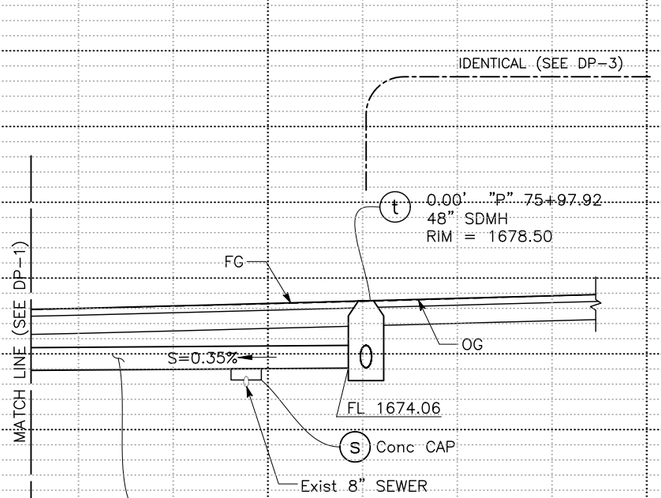
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE PROFILES
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE 10/23/2025
DRAFTER AMATES
DESIGNER AMATES
REVIEWER ABOYES

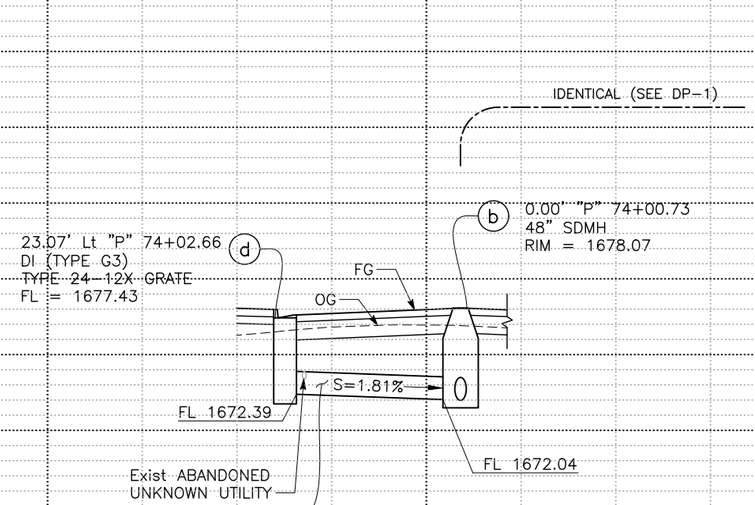
PROJECT NO.
CIP #41410
SHEET NO. C27 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

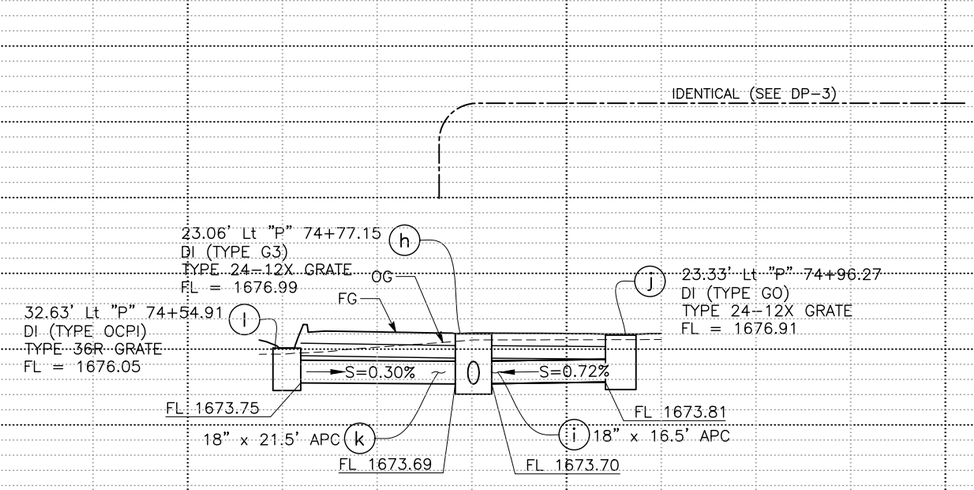
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DRAINAGE SYSTEM No. 2



DRAINAGE SYSTEM No. 2



DRAINAGE SYSTEM No. 2

SCALE: Horiz 1"=10'
Vert 1"=5'

DP-2

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

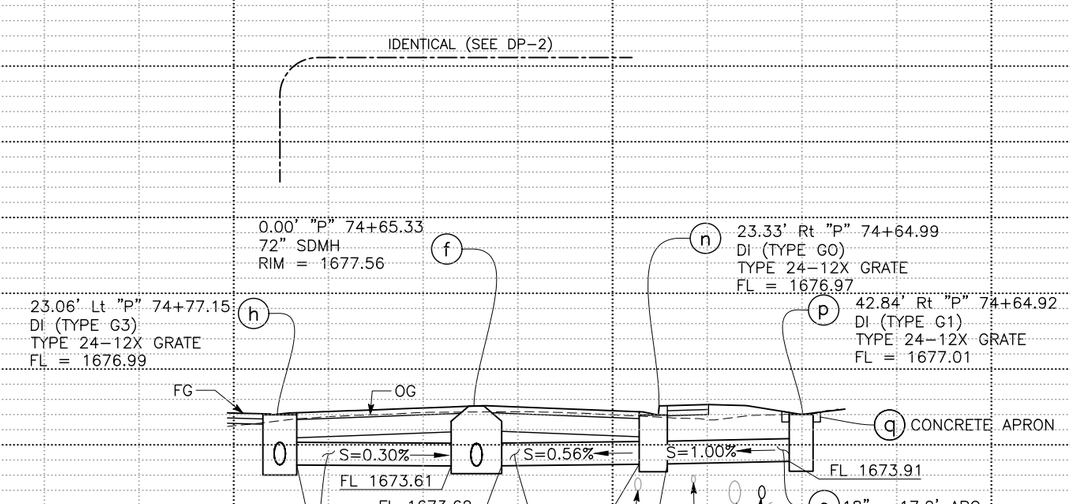
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE PROFILES
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE 10/23/2025
DRAFTER AMATOS
DESIGNER AMATOS
REVIEWER ABOYES

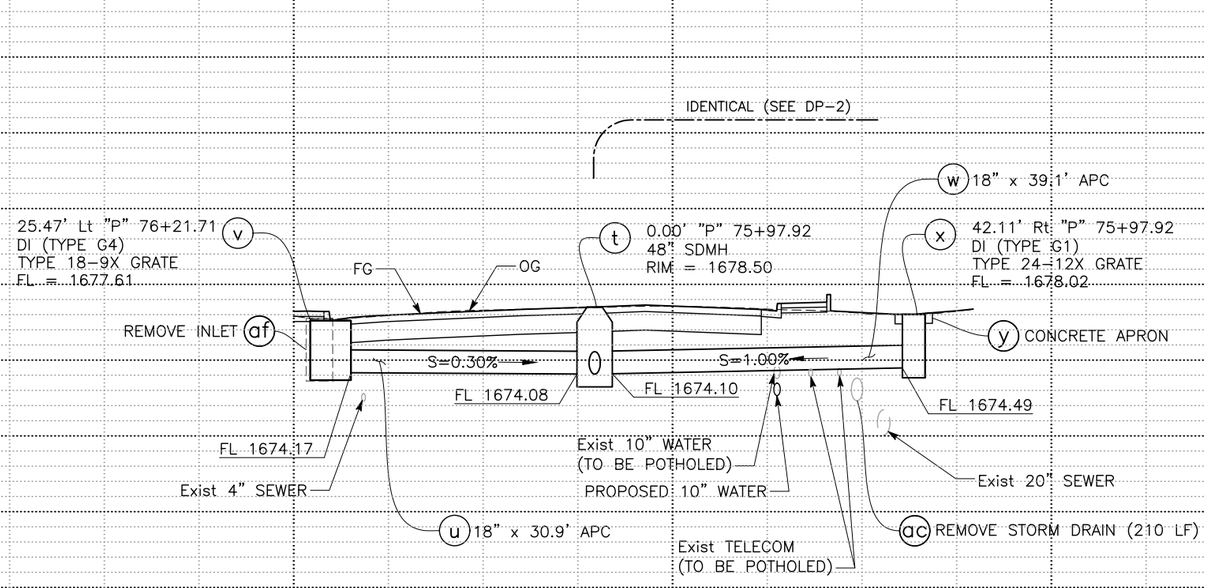
PROJECT NO.
CIP #41410
SHEET NO. C28 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

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DRAINAGE SYSTEM No. 2



DRAINAGE SYSTEM No. 2

SCALE: Horiz 1"=10'
Vert 1"=5'

DP-3

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

CITY OF PLACERVILLE

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

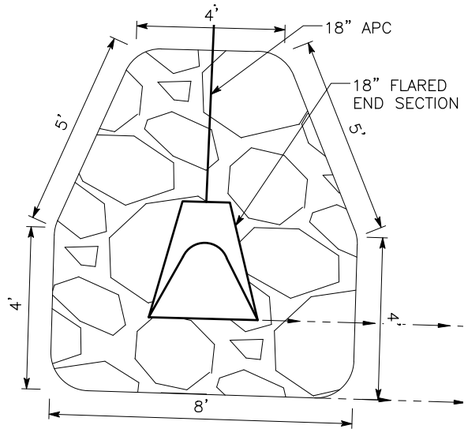
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE PROFILES
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE 10/23/2025
DRAFTER AMATOS
DESIGNER AMATOS
REVIEWER ABOYES

PROJECT NO.
CIP #41410
SHEET NO. C29 OF C63

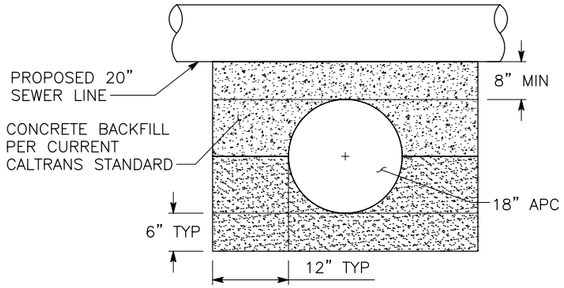
100% SUBMITTAL, NOT FOR CONSTRUCTION

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DRAINAGE SYSTEM NO. 1

(d) RSP (60 lbs, CLASS II, METHOD B)



CONCRETE CAP

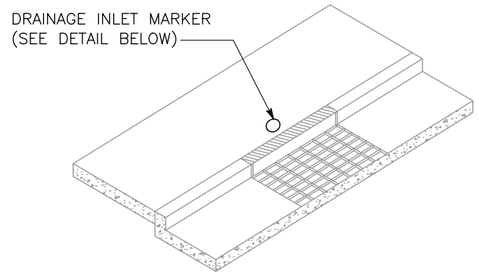
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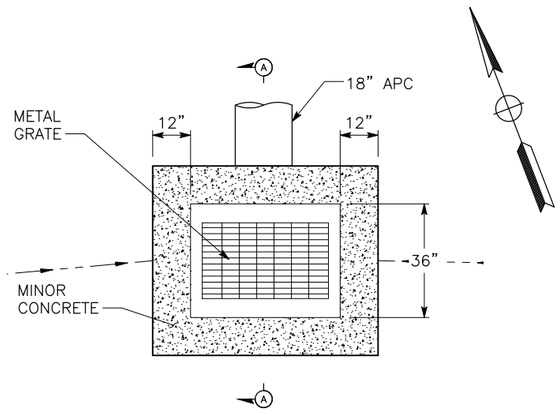
DRAINAGE SYSTEM NO. 2

(s)

NOTE:

ALL NEW OR RECONSTRUCTED DRAINAGE INLETS SHALL HAVE A DRAINAGE INLET MARKER. ALL MARKERS SHALL BE APPROVED BY THE CITY INSPECTOR PRIOR TO BEING USED.



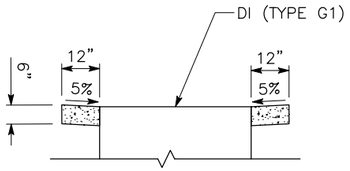


CONCRETE APRON

NO SCALE

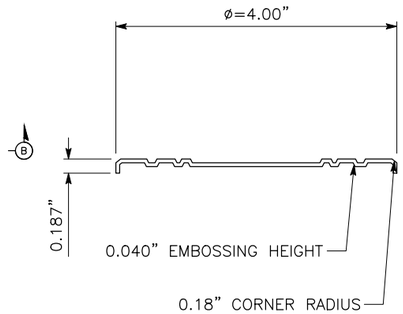
DRAINAGE SYSTEM NO. 2

(q) (y) CONCRETE APRON



SECTION A–A





SECTION B–B

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE DETAILS
CITY OF PLACERVILLE CALIFORNIA

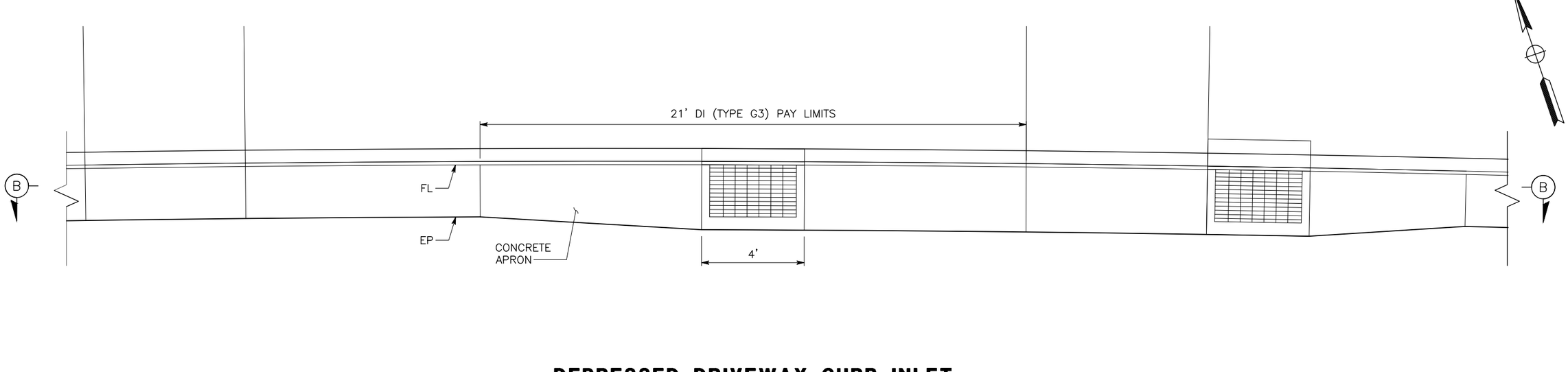
DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ABOYER

PROJECT NO.
CIP #41410
SHEET NO. C30 OF C63

DD-1

100% SUBMITTAL, NOT FOR CONSTRUCTION

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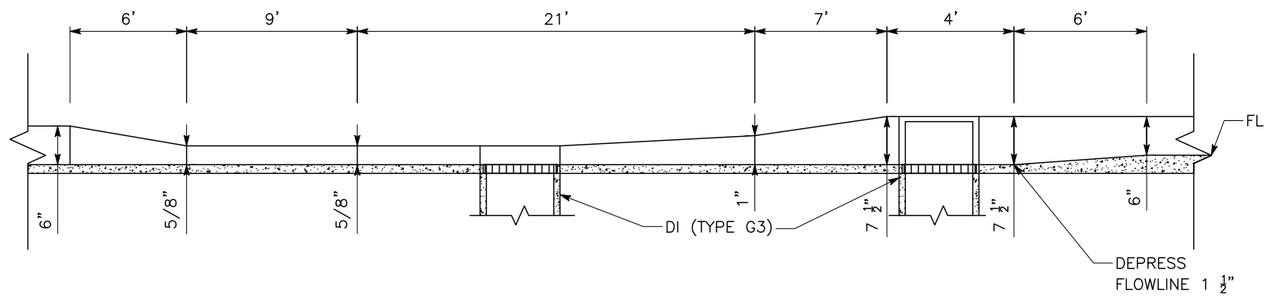


DEPRESSED DRIVEWAY CURB INLET

NO SCALE

DRAINAGE SYSTEM NO. 2

(h) DI (TYPE G3)



SECTION B–B

DD-2

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
1060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
DRAINAGE DETAILS
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/21/2025
DRAFTER: JMM/CS
DESIGNER: JMM/CS
REVIEWER: ARD/TS

PROJECT NO.
CIP #41410
SHEET NO. C31 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

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NOTES:

1. FOR ACCURATE RIGHT-OF-WAY DATA, CONTACT THE CITY OFFICE.
2. FIBER ROLLS NOT TO CONTAIN ANY PLASTICS.
3. FOR HYDROSEED SEED MIX INFORMATION, SEE PLANTING PLAN.

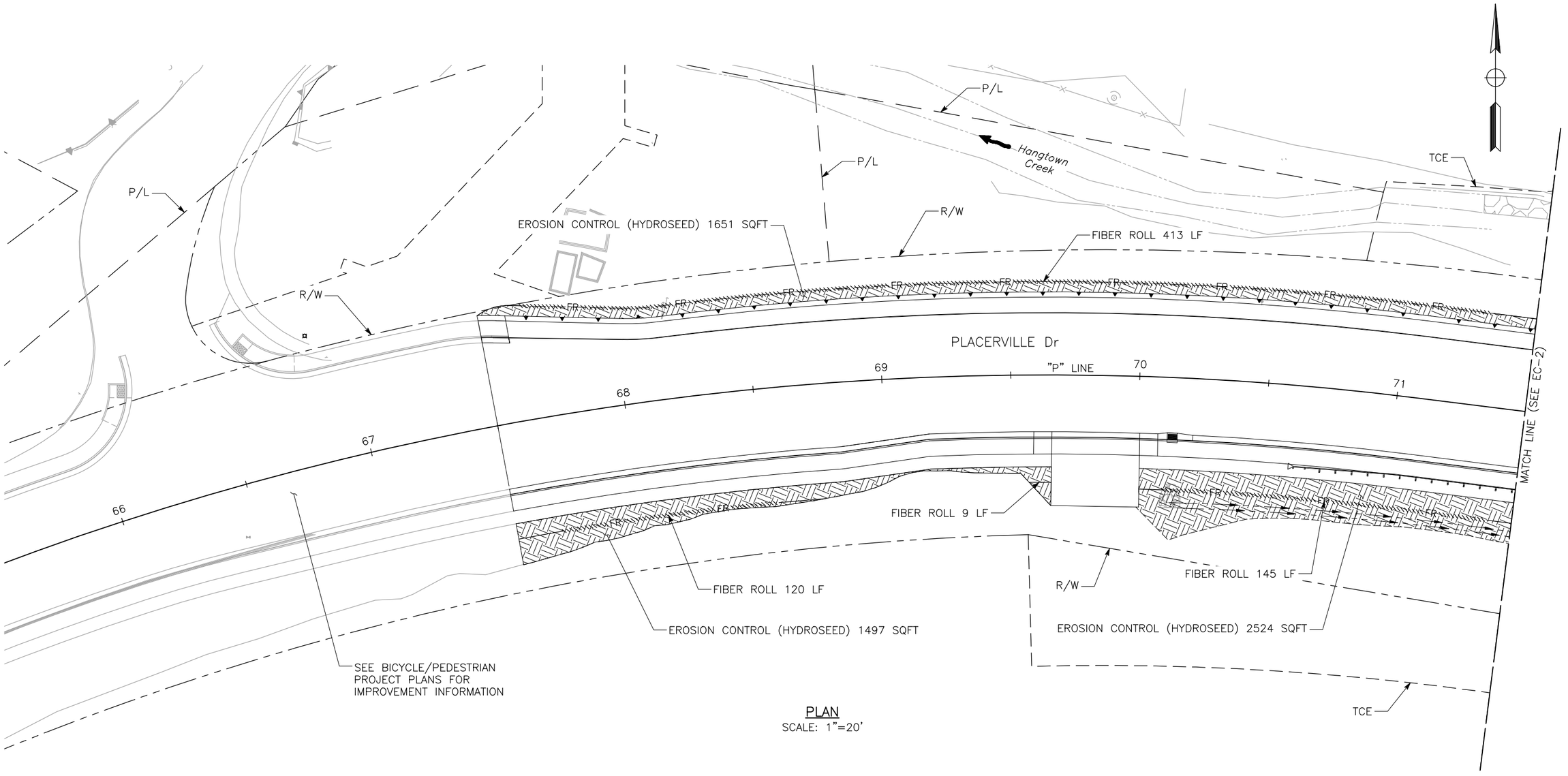
LEGEND:

FR — FIBER ROLL

EROSION CONTROL (HYDROSEED) (SEE NOTE #3)

ROCK SLOPE PROTECTION (RSP)

EROSION CONTROL QUANTITIES		
SHEET	HYDROSEED	FIBER ROLL
UNIT	SQFT	SQFT
EC-1	5,672	687
EC-2	1,926	222
TOTAL	7,598	909



PLAN
SCALE: 1"=20'

APPROVED FOR EROSION CONTROL WORK ONLY

EC-1

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
EROSION CONTROL PLAN
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ASOTER

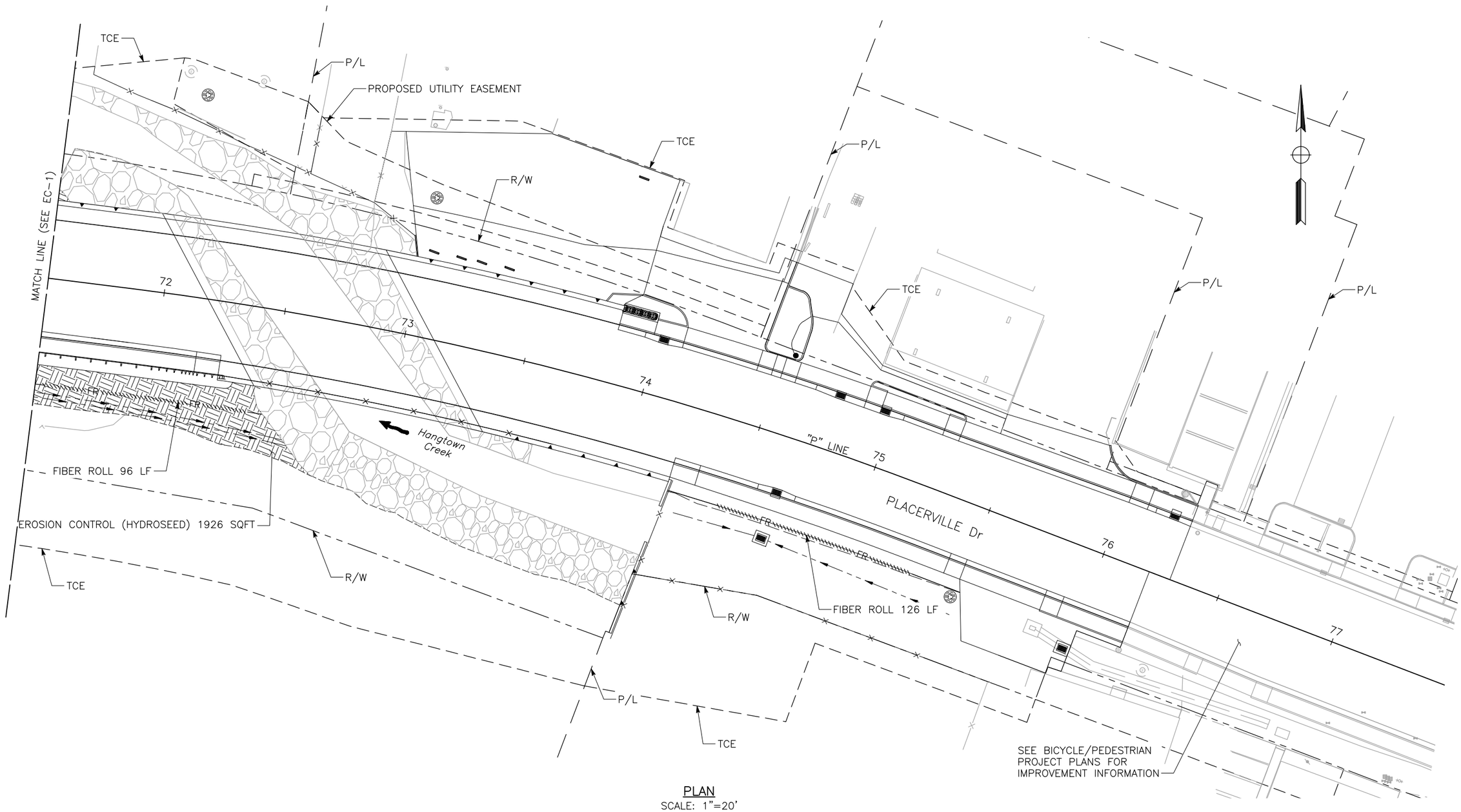
PROJECT NO.
CIP #41410
SHEET NO. C62 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

U:\18028 - Placerville Dr, Bicycle-Ped and Br. Repl - Ci Placerville\18028B Bridge Replacement\400 Project Design Files\420 Roadway & Civil\Plans\PLD-R-EC.dwg Oct 15, 2025 - 2:10pm, dboyes

NOTES:

1. FOR ACCURATE RIGHT–OF–WAY DATA, CONTACT THE CITY OFFICE.
2. CONTRACTOR TO PACK RSP VOIDS WITH SOIL AND SEED PER EROSION CONTROL PLANS OUTSIDE OF BRIDGE LIMITS.
3. HYDROSEED FOR RSP WILL BE PAID WITH RSP.



PLAN
SCALE: 1"=20'

APPROVED FOR EROSION CONTROL WORK ONLY

EC-2

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

DRAWING SCALE
HOR. SCALE: AS NOTED
VERT. SCALE: N/A

Dewberry
11060 WHITE ROCK ROAD SUITE 200
RANCHO CORDOVA, CA 95670

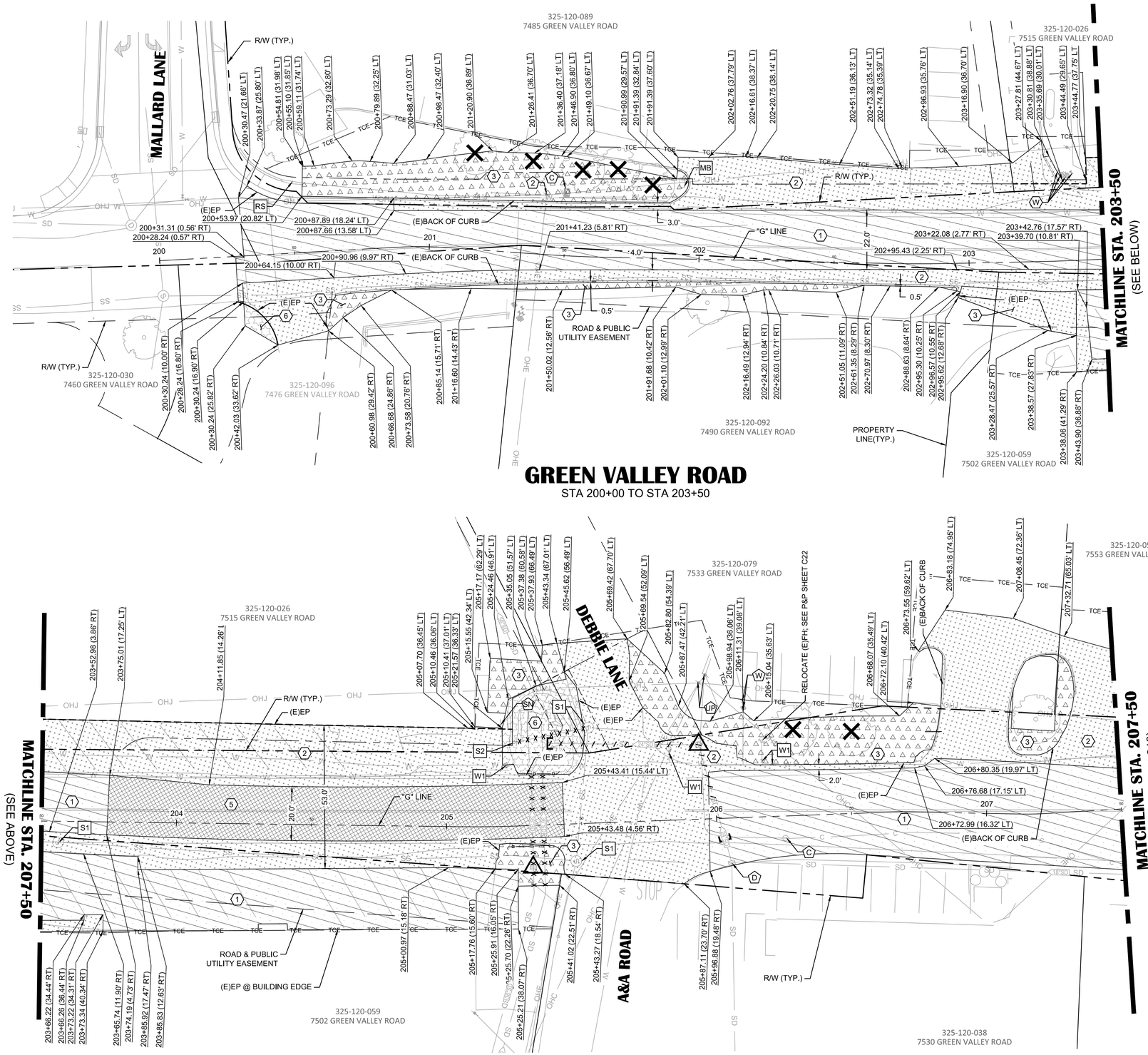
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BRIDGE REPLACEMENT
EROSION CONTROL PLAN
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/23/2025
DRAFTER: JMAYER
DESIGNER: JMAYER
REVIEWER: ASOTER

PROJECT NO.
CIP #41410
SHEET NO. C63 OF C63

100% SUBMITTAL, NOT FOR CONSTRUCTION

U:\18028 – Placerville Dr, Bicycle–Ped and Br. Repl. – Ci Placerville\18028B Bridge Replacement\400 Project Design Files\420 Roadway & Civil\Plans\PLD–R–EC.dwg Oct 09, 2025 – 9:57am, jmayer



DEMOLITION LEGEND

SYMBOL	DESCRIPTION	QTY
1	2.0" COLD PLANE AC	
2	REMOVE BASE AND SURFACING	
3	ROADWAY EXCAVATION	
5	REMOVE SURFACING	
6	CLEAR & GRUB	
	ABANDON STORM DRAIN PIPE IN PLACE	
	REMOVE STORM DRAIN PIPE	
	REMOVE DRAINAGE STRUCTURE	
	REMOVE SEWER PIPE	
	CUT & CAP (E)PIPE (SEE DETAIL 2 ON SHEET C06)	
	REMOVE GUARDRAIL	
	REMOVE TREE	

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION	QTY
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE/METER BOX	
S1	ADJUST UTILITY TO GRADE - (E)SS MANHOLE	
S2	ADJUST UTILITY TO GRADE - (E)SS CLEANOUT	
RS	RESET ROADSIDE SIGN	
MB	RELOCATE MAILBOX PER P&P SHEET C21	

PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
S	PROTECT IN PLACE (E)SEWER UTILITY
D	PROTECT IN PLACE (E)DRAINAGE UTILITY
C	PROTECT IN PLACE (E)COMM UTILITY
UP	PROTECT IN PLACE (E)UTILITY POLE
SN	PROTECT IN PLACE (E)SIGN

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE OR "G" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE AND "G" LINE ALIGNMENT DATA.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED AND APPROVED FOR REMOVAL BY CITY PRIOR TO REMOVING OR CUTTING TREE(S). EXISITING ROOTS TO BE GRINDED TO A DEPTH OF APPROXIMATELY 3 FEET. USE CAUTION WHILE GRINDING WHEN (E)UTILITIES ARE IN CLOSE PROXIMITY TO TREES. EXISTING UTILITIES SHALL BE PROTECTED UNLESS OTHERWISE NOTED.
6. ALL TREES TO REMAIN WITHIN THE LIMIT OF WORK SHALL BE PROTECTED PER SPECIFICATIONS AND DETAILS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY TRAFFIC DETECTION LOOPS IMPACTED DURING CONSTRUCTION TO FULL OPERATIONAL CONDITION, IN ACCORDANCE WITH APPLICABLE AGENCY STANDARDS AND PROJECT SPECIFICATIONS.
7. SAWCUT EXISTING CONCRETE AND
8. ASPHALT TO A NEAT-STRAIGHT LINE. ALL DEBRIS SHALL BE HAULED OFFSITE TO A LEGAL DUMPING SITE OR SALVAGED FOR REUSE ON PROJECT AS NOTED.
9. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.

ENGINEER'S STAMP

REGISTERED PROFESSIONAL ENGINEER JAMES W. MORGAN No. 73197 CIVIL STATE OF CALIFORNIA

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE
		100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

CITY OF PLACERVILLE EL DORADO COUNTY

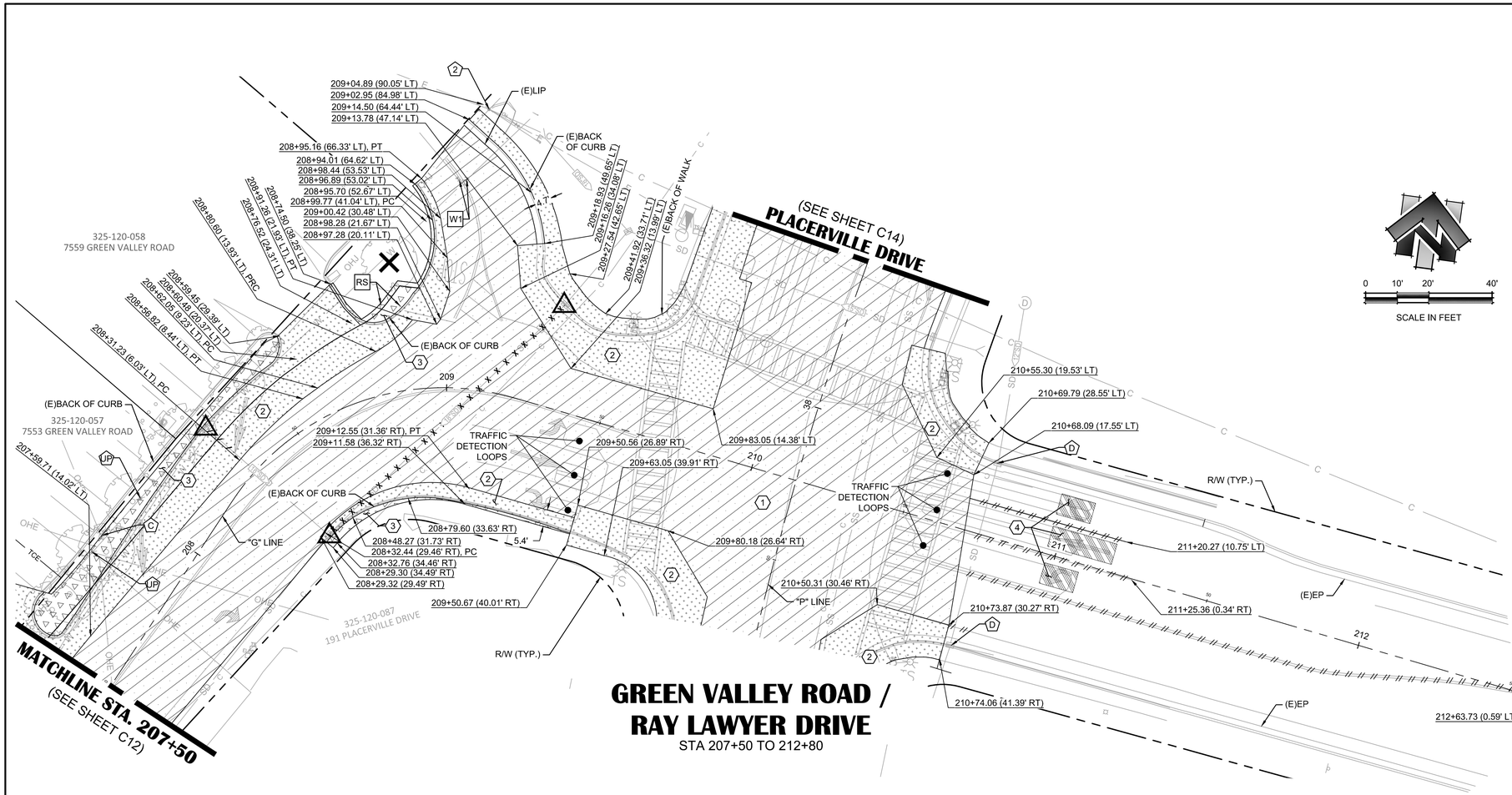
R.E.Y. ENGINEERS, Inc.
Civil Engineers | Land Surveyors | Remote Sensing
925 Sutter Street, Suite 200, Folsom, CA 95630
(916) 366-3040 Fax: (916) 366-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
DEMOLITION PLAN
GREEN VALLEY ROAD - STA 200+00 TO 207+50
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10/08/2025
DRAFTER: JCQ/GVR/SDM
DESIGNER: VGM/JCQ/SDM/GVR
REVIEWER: JWE

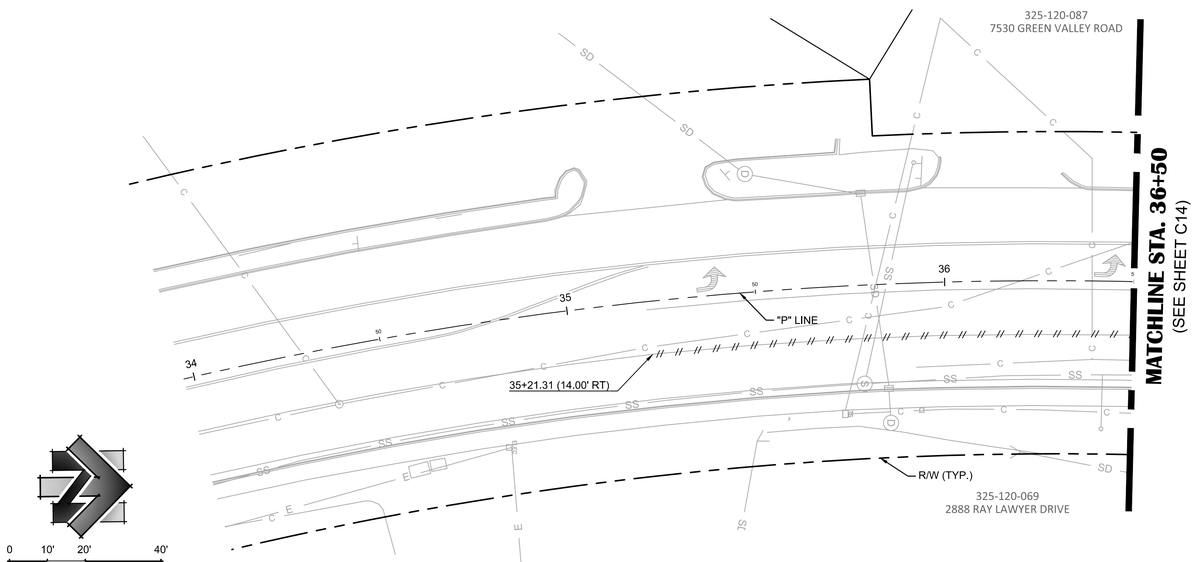
PROJECT NO.
CIP# 41816
SHEET NO. C12 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – DEMOLITION PLAN.dwg Oct 08, 2025 – 4:13pm, smalone



GREEN VALLEY ROAD / RAY LAWYER DRIVE

STA 207+50 TO 212+80



PLACERVILLE DRIVE

STA 34+00 TO 36+50

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
1	2.0" COLD PLANE AC
2	REMOVE BASE AND SURFACING
3	ROADWAY EXCAVATION
4	REMOVE PAVEMENT MARKING
X X X X X X	REMOVE STORM DRAIN PIPE
	REMOVE DRAINAGE STRUCTURE
// // // //	REMOVE TRAFFIC STRIPE
X	REMOVE TREE

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE
RS	RESET ROADSIDE SIGN

PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
C	PROTECT IN PLACE (E)COMMUNICATIONS UTILITY
UP	PROTECT IN PLACE (E)UTILITY POLE

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE OR "G" LINE, UNLESS OTHERWISE NOTED.
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9. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.

ENGINEER'S STAMP

REGISTERED PROFESSIONAL ENGINEER JAMES W. ROSE No. 73197 CIVIL STATE OF CALIFORNIA

NO.	REVISION DESCRIPTION	CHECKED BY	DATE
	100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

R.E.Y. ENGINEERS, Inc.
CA Engineers | Land Surveyors | Materials Testing
905 Sutter Street, Suite 200 Folsom, CA 95630
(916) 366-3040 Fax (916) 366-3303

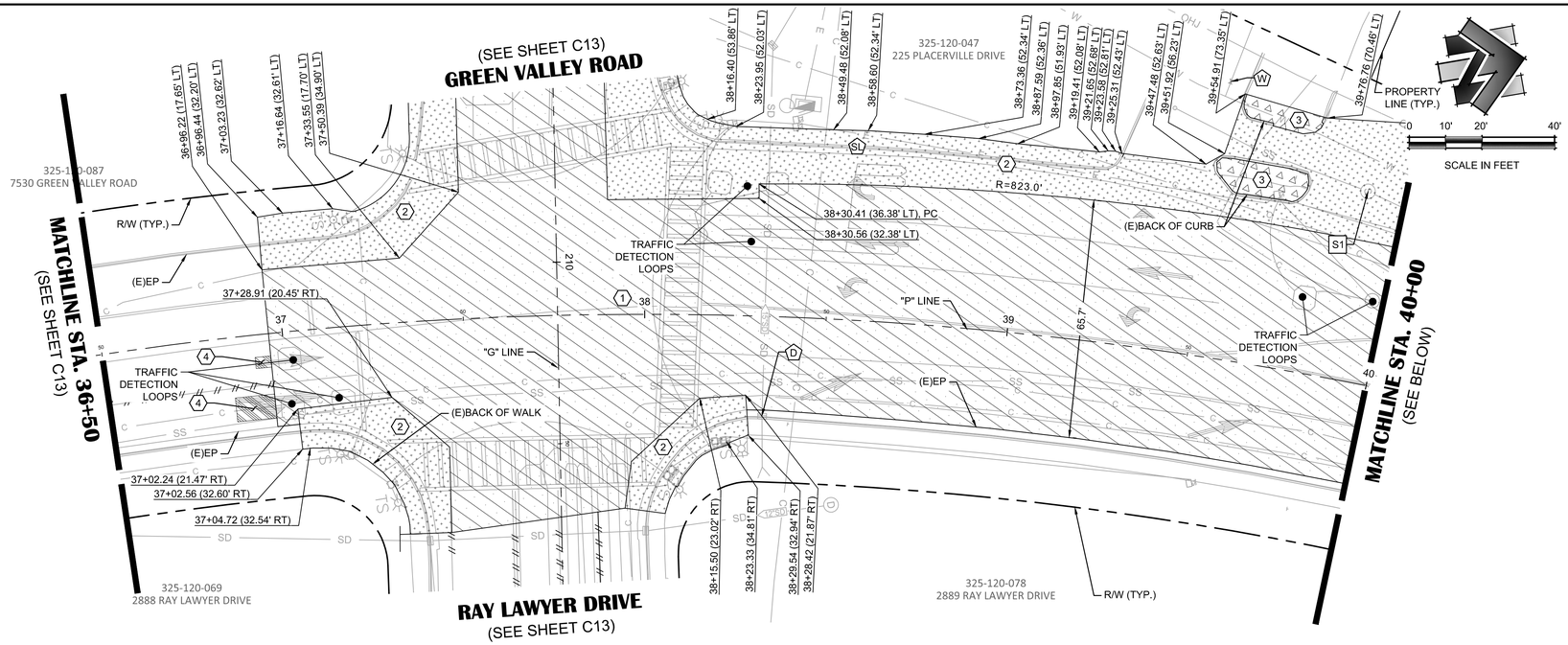
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES

DEMOLITION PLAN
GREEN VALLEY ROAD - STA 207+50 TO 212+80
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCQ/GVR/SDM
DESIGNER: VGM/JCQ/SDM/GVR
REVIEWER: JWE

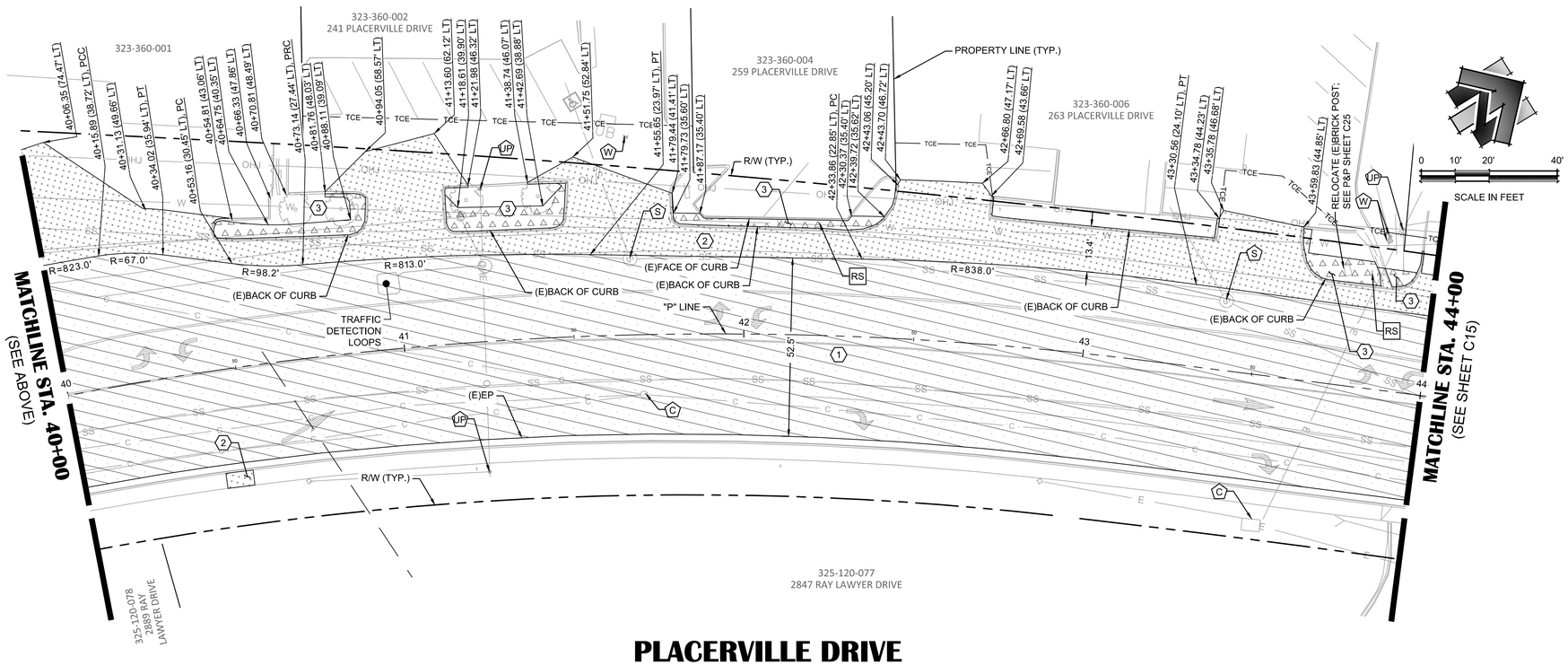
PROJECT NO.
CIP# 41816
SHEET NO. **C13** OF **C66**

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – DEMOLITION PLAN.dwg Oct 08, 2025 – 4:13pm, smalone



PLACERVILLE DRIVE

STA 36+50 TO STA 40+00



PLACERVILLE DRIVE

STA 40+00 TO STA 44+00

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
1	2.0" COLD PLANE AC
2	REMOVE BASE AND SURFACING
3	ROADWAY EXCAVATION
4	REMOVE PAVEMENT MARKING

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION
S1	ADJUST UTILITY TO GRADE - (E)SS MANHOLE
RS	RESET ROADSIDE SIGN

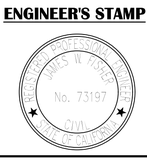
PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
S	PROTECT IN PLACE (E)SEWER UTILITY
D	PROTECT IN PLACE (E)DRAINAGE UTILITY
C	PROTECT IN PLACE (E)COMMUNICATIONS UTILITY
MB	PROTECT IN PLACE (E)MAILBOX
UP	PROTECT IN PLACE (E)UTILITY POLE

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
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ENGINEER'S STAMP



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		100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

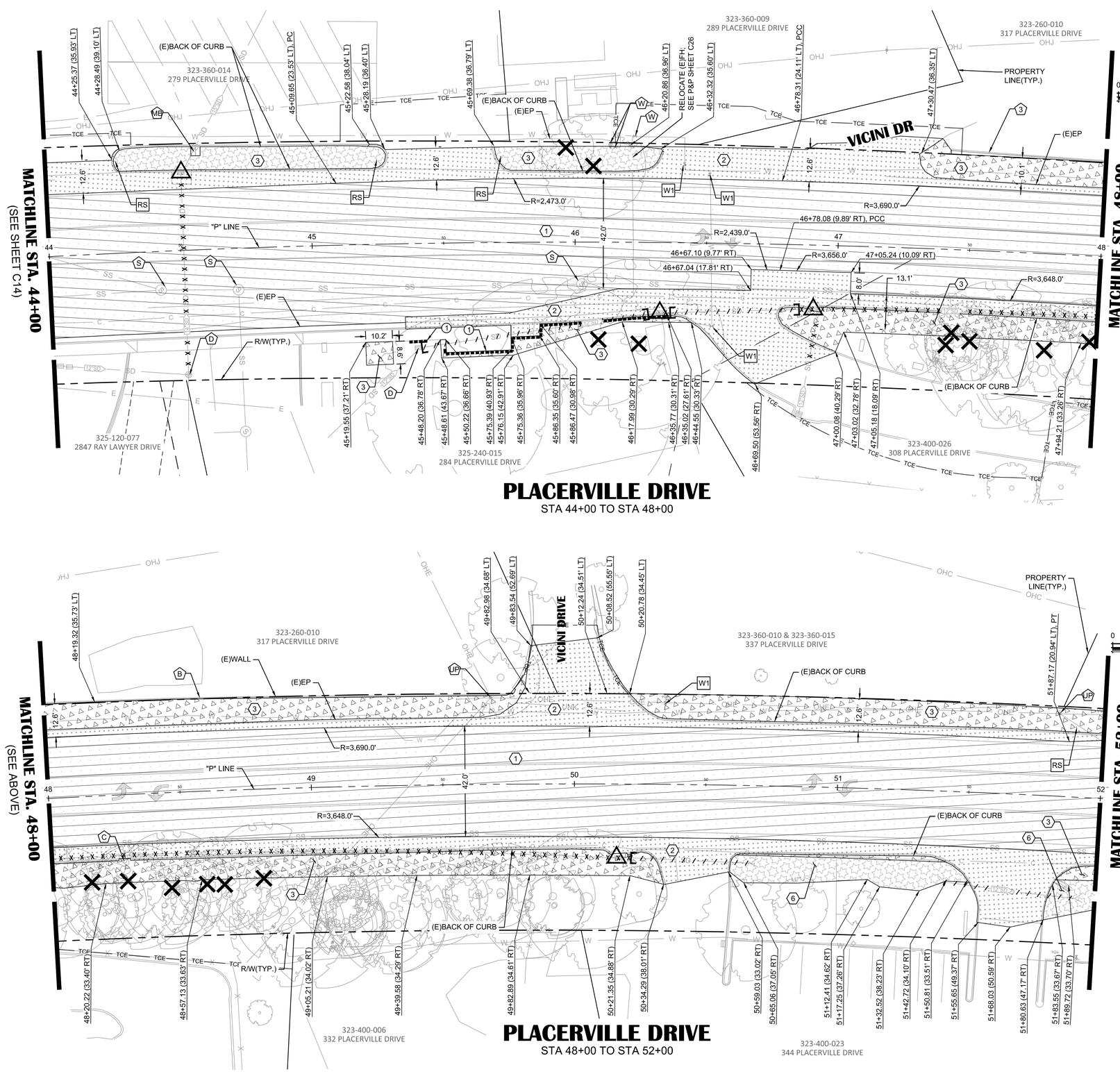
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Civil Engineers | Land Surveyors | Remote Sensing
905 Sutter Street, Suite 200, Folsom, CA 95630
(916) 366-3040 Fax (916) 366-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
DEMOLITION PLAN
PLACERVILLE DRIVE - STA 36+00 TO 44+00
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCO/GVR/SDM
DESIGNER: VGM/JCO/SDM/GVR
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C14 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – DEMOLITION PLAN.dwg Oct 08, 2025 – 4:13pm, smalone



DEMOLITION LEGEND

SYMBOL	DESCRIPTION
1	2.0" COLD PLANE AC
2	REMOVE BASE AND SURFACING
3	ROADWAY EXCAVATION
6	CLEAR & GROUB
	ABANDON STORM DRAIN PIPE IN PLACE
	REMOVE STORM DRAIN PIPE
	REMOVE DRAINAGE STRUCTURE
	CUT & CAP (E)PIPE (SEE DETAIL 2 ON SHEET C06)
	REMOVE WALL
	REMOVE TREE

DEMOLITION KEYNOTES:

KEY NOTE	DESCRIPTION
1	REMOVE WALL

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE
RS	RESET ROADSIDE SIGN

PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
S	PROTECT IN PLACE (E)SEWER UTILITY
D	PROTECT IN PLACE (E)DRAINAGE UTILITY
MB	PROTECT IN PLACE (E)MAILBOX
UP	PROTECT IN PLACE (E)UTILITY POLE
B	PROTECT IN PLACE (E)BARRIER

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
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ENGINEER'S STAMP

REGISTERED PROFESSIONAL ENGINEER JAMES W. FOSTER No. 73197 CIVIL STATE OF CALIFORNIA

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

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NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

CITY OF PLACERVILLE

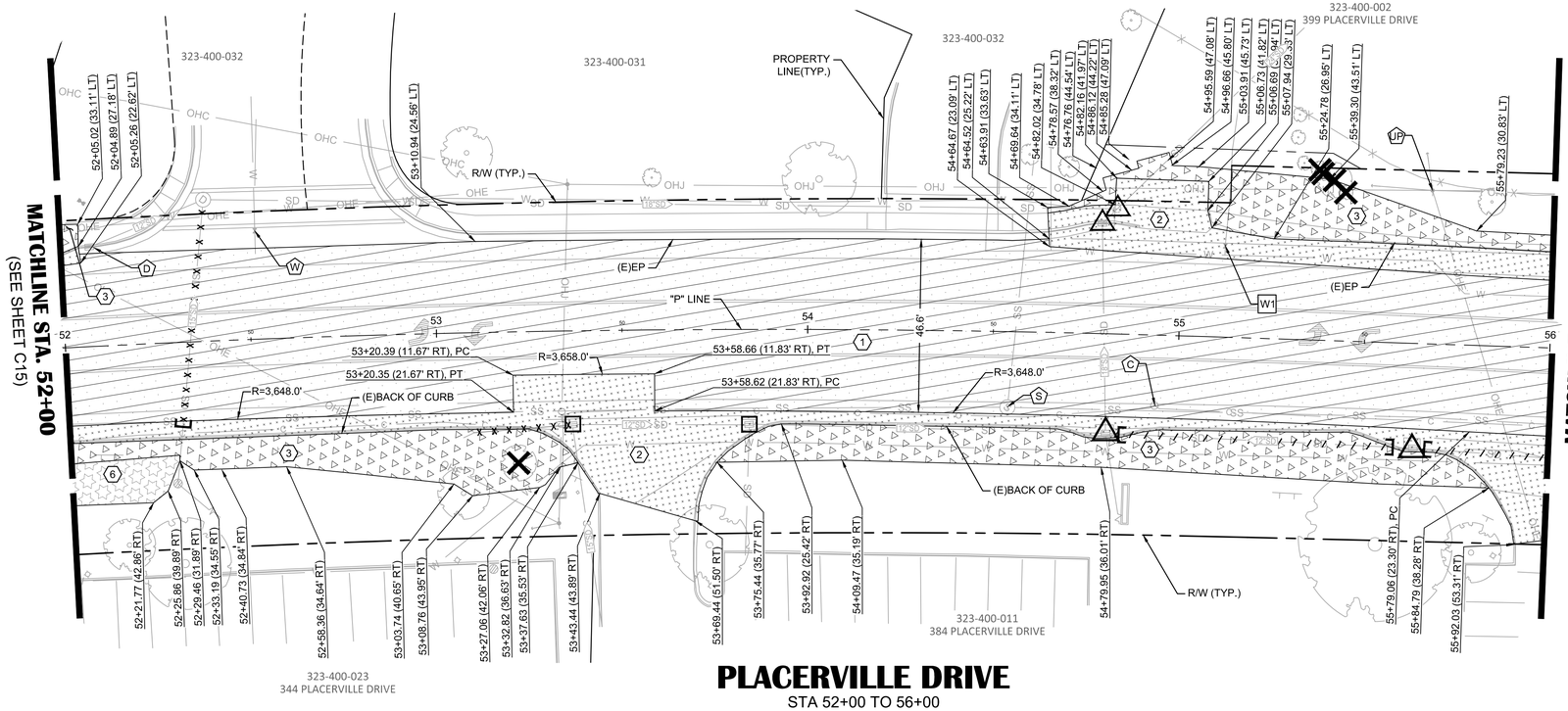
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925 Sutter Street, Suite 200, Folsom, CA 95630
(916) 365-3040 Fax (916) 365-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
DEMOLITION PLAN
PLACERVILLE DRIVE - STA 44+00 TO 52+00
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCO/CVR/SDM
DESIGNER: VGM/JCO/SDM/CVR
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C15 OF C66

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PLACERVILLE DRIVE

STA 52+00 TO 56+00

DEMOLITION LEGEND

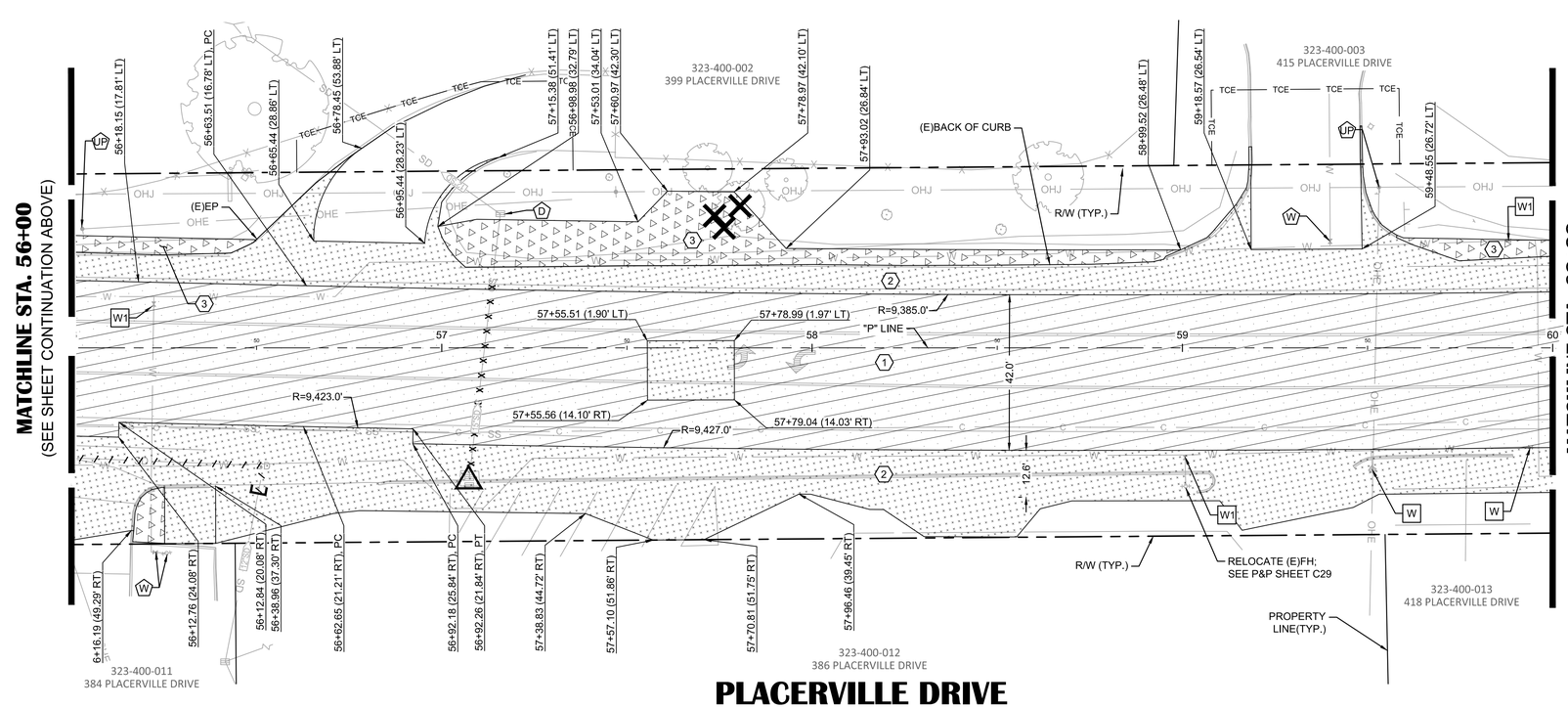
SYMBOL	DESCRIPTION
1	2.0" COLD PLANE AC
2	REMOVE BASE AND SURFACING
3	ROADWAY EXCAVATION
6	CLEAR & GRUB
	ABANDON STORM DRAIN PIPE IN PLACE
	REMOVE STORM DRAIN PIPE
	REMOVE DRAINAGE STRUCTURE
	REMOVE FRAME & GRATE
	CUT & CAP (E)PIPE (SEE DETAIL 2 ON SHEET C06)
	REMOVE TREE

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE

PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
S	PROTECT IN PLACE (E)SEWER UTILITY
D	PROTECT IN PLACE (E)DRAINAGE UTILITY
C	PROTECT IN PLACE (E)COMMUNICATIONS UTILITY
MB	PROTECT IN PLACE (E)MAILBOX
UP	PROTECT IN PLACE (E)UTILITY POLE



PLACERVILLE DRIVE

56+00 TO 60+00

SHEET NOTES:

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ENGINEER'S STAMP

REGISTERED PROFESSIONAL ENGINEER — JAMES W. MORGAN — No. 73197 — CIVIL — STATE OF CALIFORNIA

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE
		100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

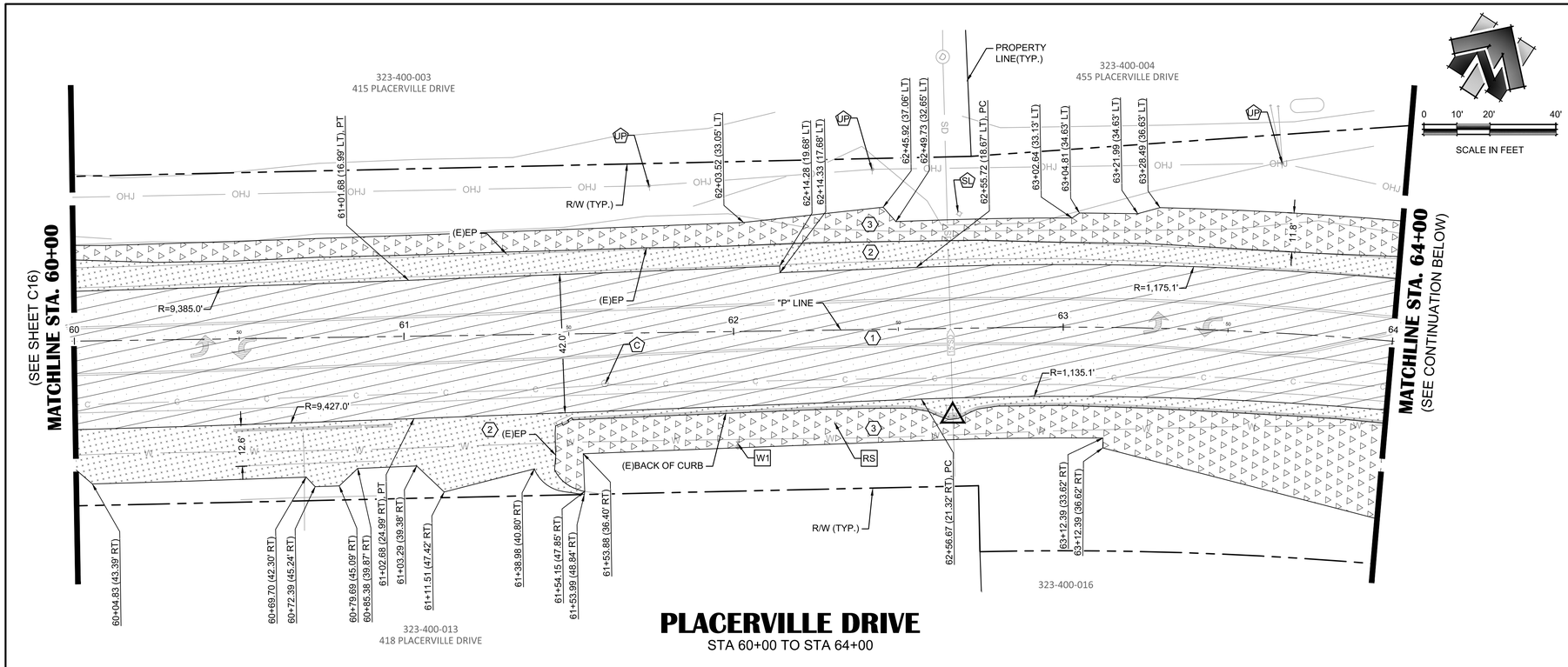
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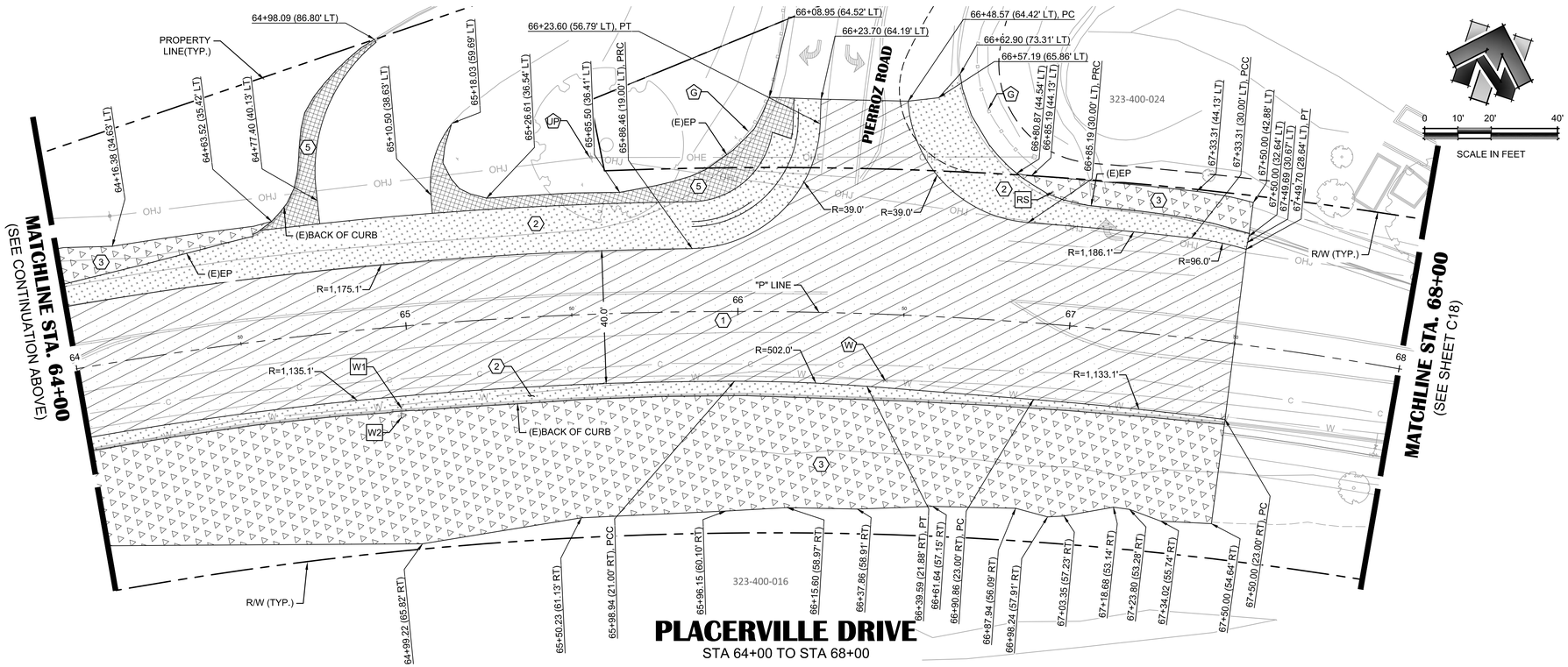
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
DEMOLITION PLAN
PLACERVILLE DRIVE - STA 52+00 TO 60+00
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCQ/CVR/SDM
DESIGNER: VGM/JCQ/SDM/CVR
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C16 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – DEMOLITION PLAN.dwg Oct 08, 2025 – 4:13pm, smdone





DEMOLITION LEGEND

SYMBOL	DESCRIPTION
1	2.0" COLD PLANE AC
2	REMOVE BASE AND SURFACING
3	ROADWAY EXCAVATION
5	REMOVE SURFACING
	REMOVE DRAINAGE STRUCTURE
	REMOVE WALL
	REMOVE TREE

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE
W2	ADJUST UTILITY TO GRADE - (E)FIRE HYDRANT
RS	RESET ROADSIDE SIGN

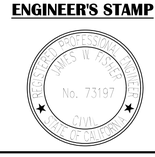
PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
S	PROTECT IN PLACE (E)SEWER UTILITY
D	PROTECT IN PLACE (E)DRAINAGE UTILITY
C	PROTECT IN PLACE (E)COMMUNICATIONS UTILITY
MB	PROTECT IN PLACE (E)MAILBOX
UP	PROTECT IN PLACE (E)UTILITY POLE
G	PROTECT IN PLACE (E)METAL BEAM GUARDRAIL

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED AND APPROVED FOR REMOVAL BY CITY PRIOR TO REMOVING OR CUTTING TREE(S). EXISITING ROOTS TO BE GRINDED TO A DEPTH OF APPROXIMATELY 3 FEET. USE CAUTION WHILE GRINDING WHEN (E)UTILITIES ARE IN CLOSE PROXIMITY TO TREES. EXISTING UTILITIES SHALL BE PROTECTED UNLESS OTHERWISE NOTED.
6. ALL TREES TO REMAIN WITHIN THE LIMIT OF WORK SHALL BE PROTECTED PER SPECIFICATIONS AND DETAILS.
7. SAWCUT EXISTING CONCRETE AND ASPHALT TO A NEAT-STRAIGHT LINE. ALL DEBRIS SHALL BE HAULED OFFSITE TO A LEGAL DUMPING SITE OR SALVAGED FOR REUSE ON PROJECT AS NOTED.
8. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.

ENGINEER'S STAMP



NO.	REVISION	DESCRIPTION	CHECKED BY	DATE

100% SUBMITTAL
NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

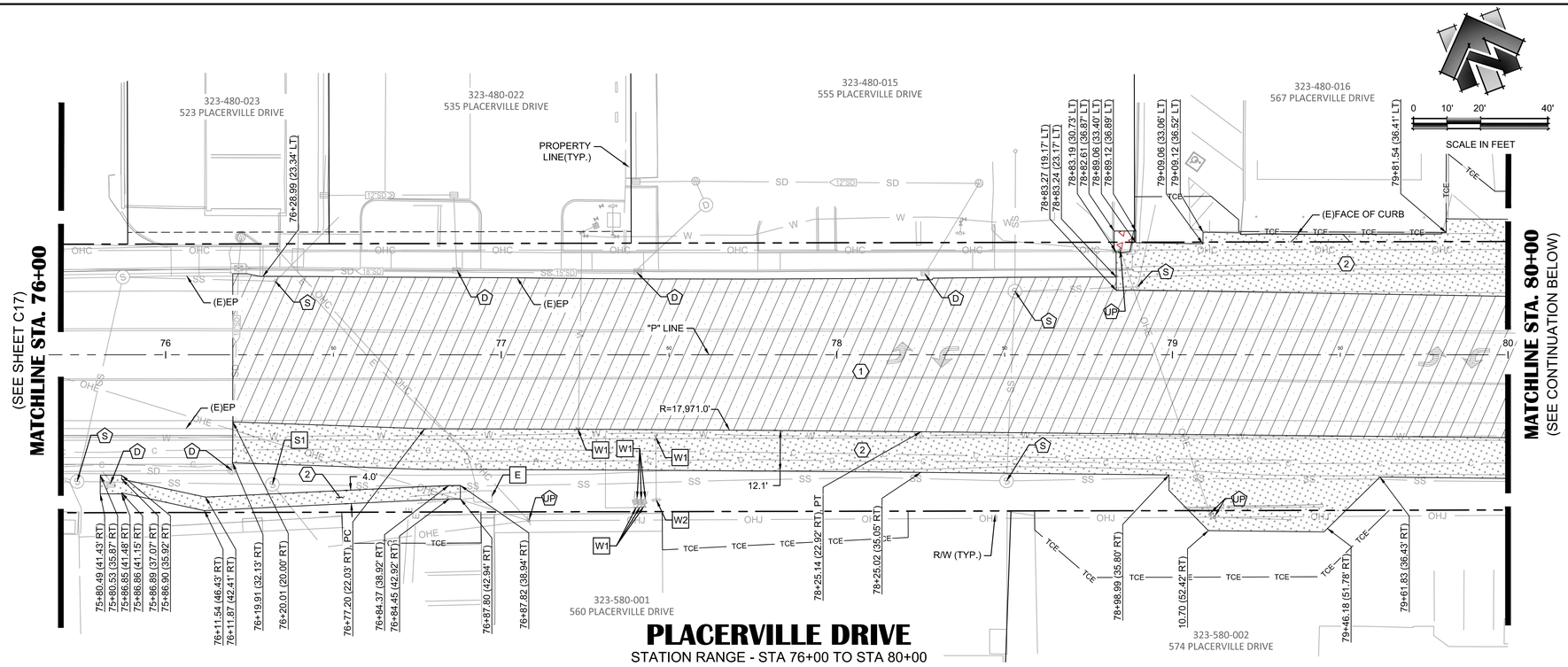
R.E.Y. ENGINEERS, Inc.
Civil Engineers | Land Surveyors | Remote Sensing
905 Sutter Street, Suite 200, Folsom, CA 95630
(916) 366-3040 Fax (916) 366-3303

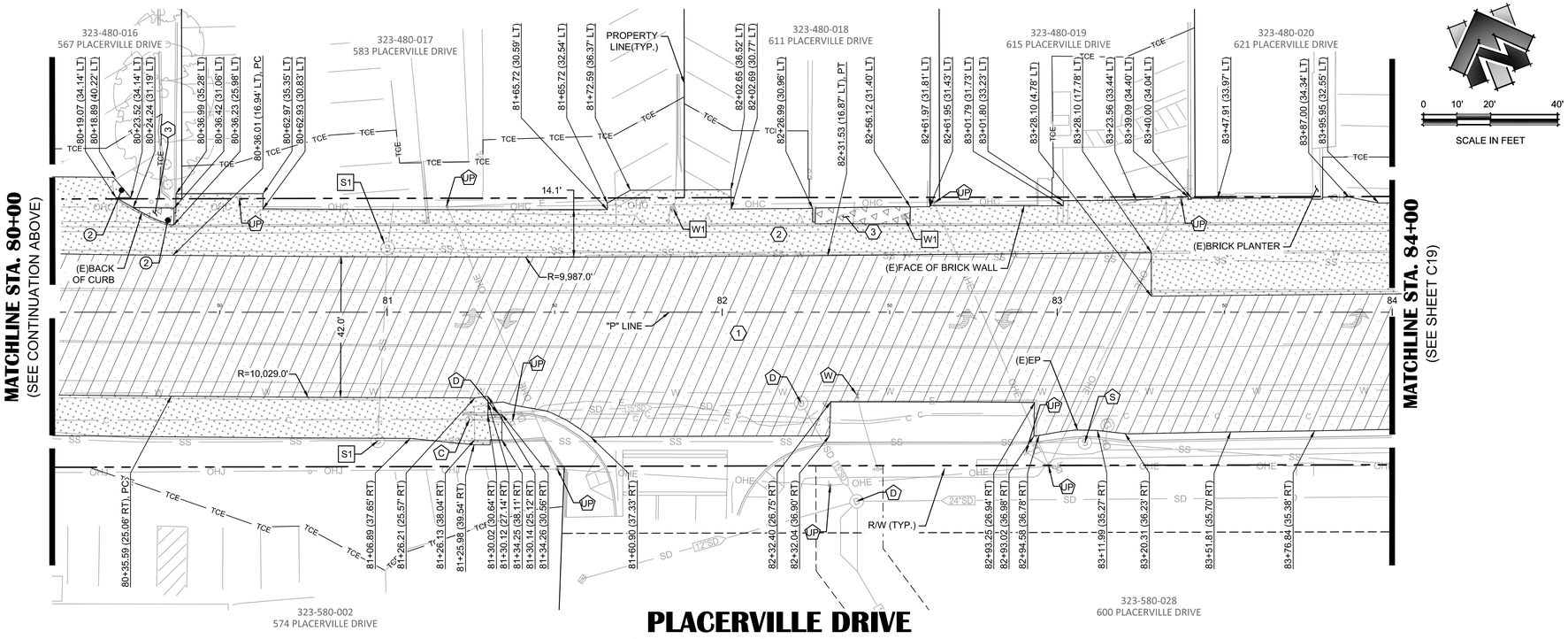
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
DEMOLITION PLAN
PLACERVILLE DRIVE - STA 60+00 TO 68+00
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10.08.2025
DRAFTER: JCQ/GVR/SDM
DESIGNER: VGM/JCQ/SDM/GVR
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C17 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – DEMOLITION PLAN.dwg Oct 08, 2025 – 4:13pm, smalone





DEMOLITION LEGEND

SYMBOL	DESCRIPTION
1	2.0" COLD PLANE AC
2	REMOVE BASE AND SURFACING
3	ROADWAY EXCAVATION

DEMOLITION KEYNOTES:

KEY NOTE	DESCRIPTION
2	REMOVE BOLLARD

ADJUSTMENT KEYNOTES:

KEY NOTE	DESCRIPTION
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE/METER BOX
S1	ADJUST UTILITY TO GRADE - (E)SS MANHOLE
E	ADJUST UTILITY TO GRADE - (E)ELECTRICAL BOX

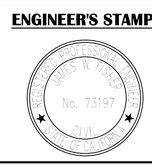
PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
S	PROTECT IN PLACE (E)SEWER UTILITY
D	PROTECT IN PLACE (E)DRAINAGE UTILITY
C	PROTECT IN PLACE (E)COMMUNICATIONS UTILITY
UP	PROTECT IN PLACE (E)UTILITY POLE

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED AND APPROVED FOR REMOVAL BY CITY PRIOR TO REMOVING OR CUTTING TREE(S). EXISITING ROOTS TO BE GRINDED TO A DEPTH OF APPROXIMATELY 3 FEET. USE CAUTION WHILE GRINDING WHEN (E)UTILITIES ARE IN CLOSE PROXIMITY TO TREES. EXISTING UTILITIES SHALL BE PROTECTED UNLESS OTHERWISE NOTED.
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8. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.

ENGINEER'S STAMP



NO.	REVISION DESCRIPTION	CHECKED BY	DATE
	100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

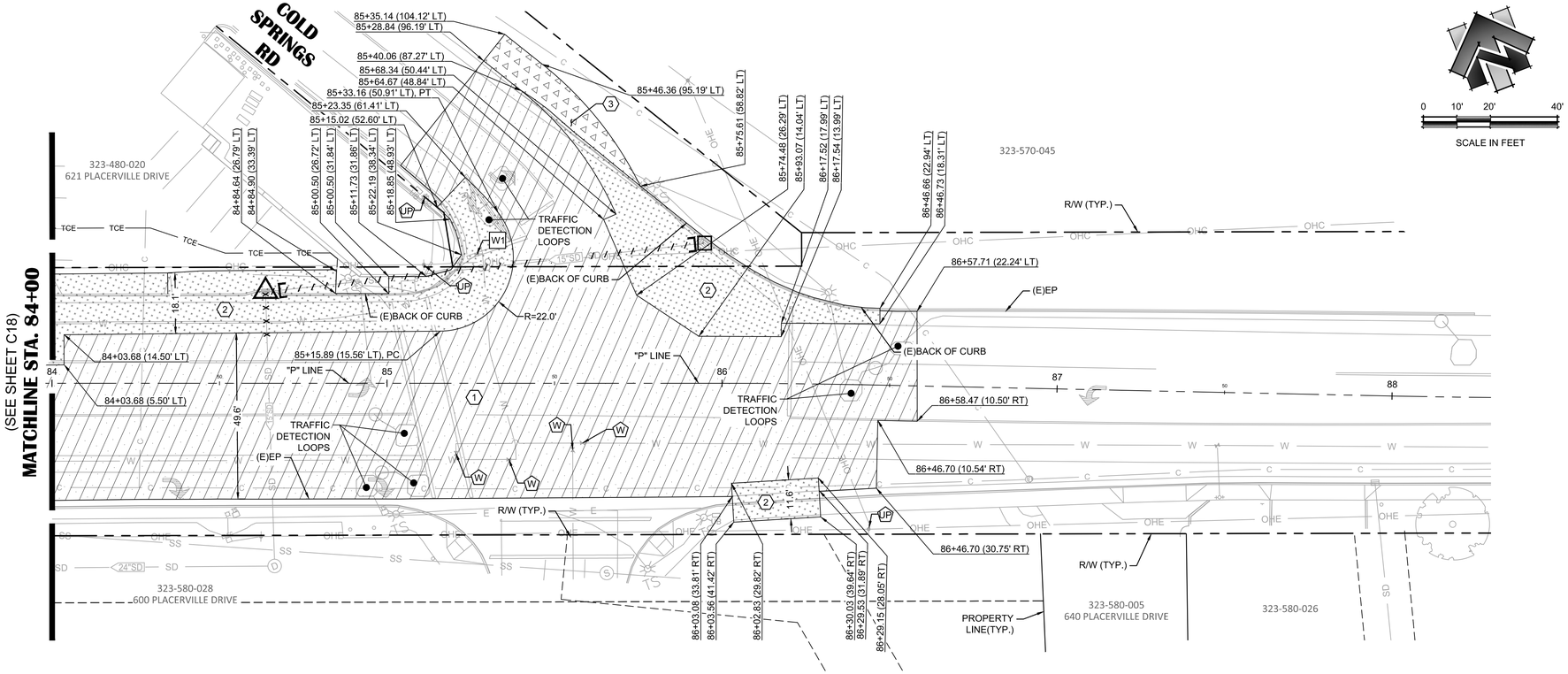
R.E.Y ENGINEERS, Inc.
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900 Sutter Street, Suite 200 Folsom, CA 95630
(916) 366-3040 Fax (916) 366-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
DEMOLITION PLAN
PLACERVILLE DRIVE - STA 76+00 TO 84+00
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCO/CH/RSCM
DESIGNER: VCM/JCO/SCM/GVR
REVIEWER: JWE

PROJECT NO.
CIP# 41816
SHEET NO. **C18** OF **C66**

N:\2332 - Drake Haglan\004 - Placerville Drive\10 - CAD Drawings\Improvement Plans\2332.004 - DEMOLITION PLAN.dwg Oct 08, 2025 - 4:14pm, smalone



PLACERVILLE DRIVE

STATION RANGE - STA 84+00 TO STA 88+00

0 10' 20' 40'

SCALE IN FEET

DEMOLITION LEGEND

SYMBOL	DESCRIPTION	QTY
(1)	2.0" COLD PLANE AC	
(2)	REMOVE BASE AND SURFACING	
(3)	ROADWAY EXCAVATION	
	ABANDON STORM DRAIN PIPE IN PLACE	
	REMOVE STORM DRAIN PIPE	
	REMOVE FRAME & GRATE	
	REMOVE DRAINAGE STRUCTURE	
	CUT & CAP (E)PIPE (SEE DETAIL 2 ON SHEET C06)	

PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W1	ADJUST UTILITY TO GRADE - (E)WATER VALVE

PROTECTION KEYNOTES:

KEY NOTE	DESCRIPTION
W	PROTECT IN PLACE (E)WATER UTILITY
MB	PROTECT IN PLACE (E)MAILBOX
UP	PROTECT IN PLACE (E)UTILITY POLE

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
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8. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.

ENGINEER'S STAMP

JAMES W. KOSTA — No. 73197 — CIVIL — STATE OF CALIFORNIA

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE
		100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: N/A

CITY OF PLACERVILLE

R.E.Y. ENGINEERS, Inc.
Civil Engineers | Land Surveyors | Forensic Services
925 Sutter Street, Suite 200 Folsom, CA 95630
(916) 366-3040 Fax (916) 366-3303

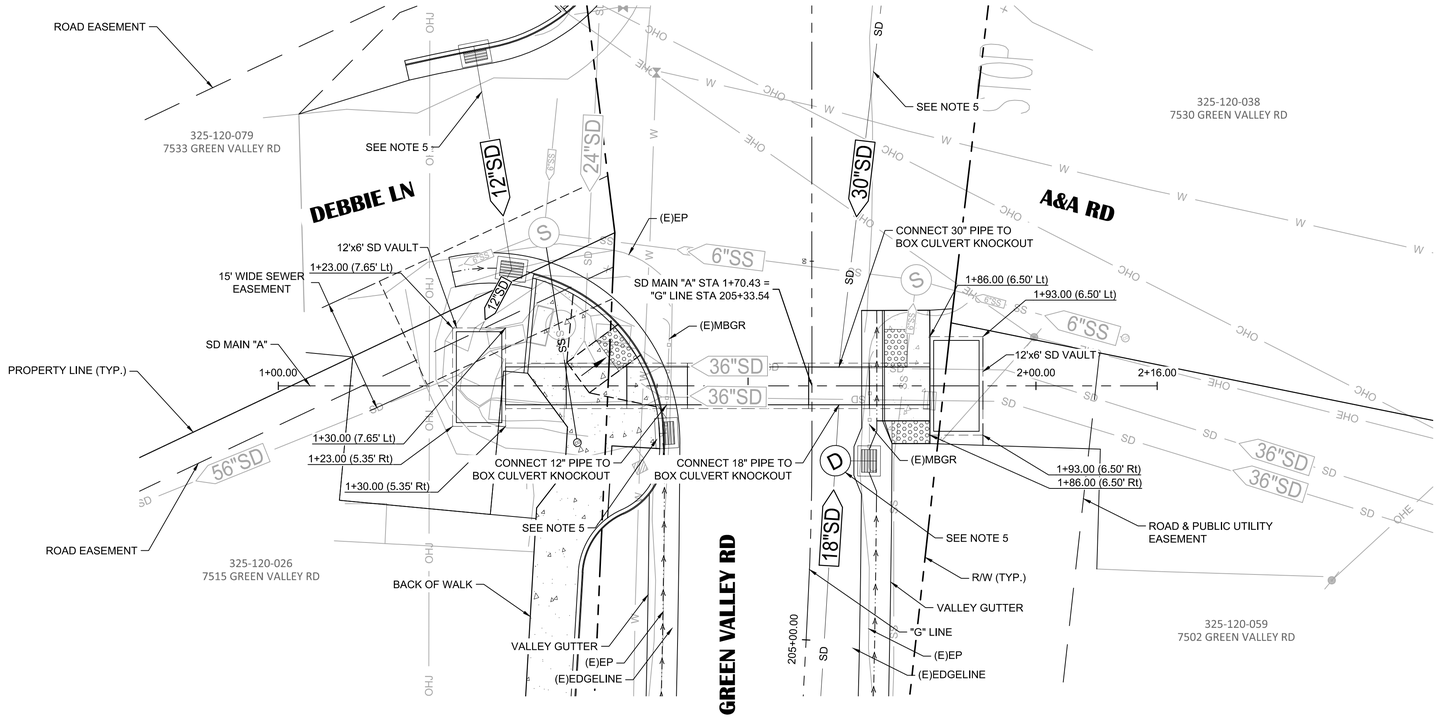
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
CITY OF PLACERVILLE

DEMOLITION PLAN
PLACERVILLE DRIVE - STA 84+00 TO 88+00
CALIFORNIA

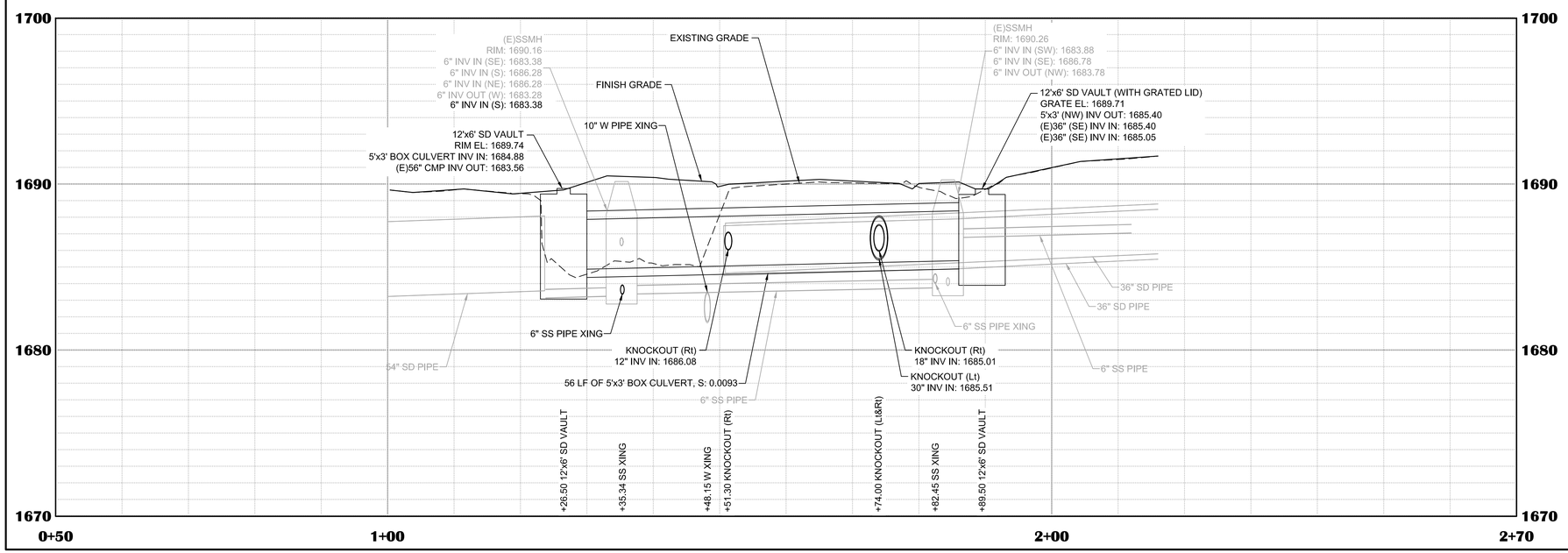
DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCQ,GV,RS,DM
DESIGNER: VGM,JCQ,SDM,GV,R
REVIEWER: JWK

PROJECT NO.
CIP# 41816
SHEET NO. **C19** OF **C66**

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – DEMOLITION PLAN.dwg Oct 08, 2025 – 4:14pm, smalone



DEBBIE LANE - SD MAIN "A"



SHEET LEGEND

SYMBOL	DESCRIPTION
	12'x6' SD VAULT
	5'x3' BOX CULVERT (8' SEGMENT (TYP.))

0 5' 10' 20'

SCALE IN FEET

DRAINAGE KEYNOTES:

KEY NOTE	DESCRIPTION

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO SD MAIN "A", UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR SD MAIN A LINE ALIGNMENT DATA.
4. SEE DEMOLITION PLAN SHEET C12 FOR DEMOLITION LIMITS INCLUDING REMOVAL & ABANDONMENT OF EXISTING SD PIPE & STRUCTURES.
5. SEE LAYOUT PLAN & PROFILE SHEET C22 FOR SURFACE IMPROVEMENTS, AND ADDITIONAL SD PIPE & SD STRUCTURE INFORMATION ALONG "G" LINE NOT SHOWN THIS SHEET.

ENGINEER'S STAMP

PROFESSIONAL ENGINEER JAMES W. FISHER No. 73197 CIVIL STATE OF CALIFORNIA

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE

100% SUBMITTAL
NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE: 1" = 10'
VERT. SCALE: 1" = 4'

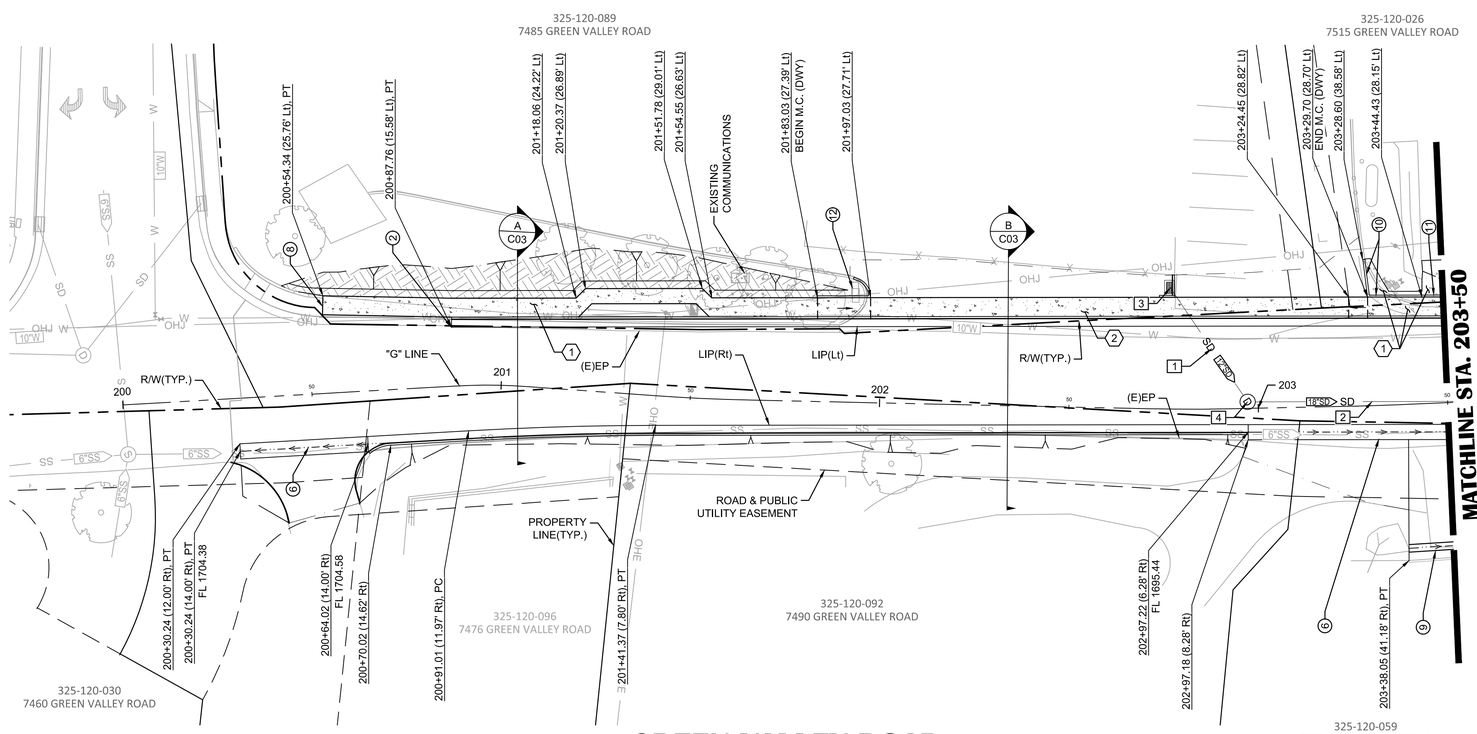
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925 Sutter Street, Suite 200 Folsom, CA 95630
(916) 356-3040 Fax (916) 364-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
SD PLAN & PROFILE
DEBBIE LANE - SD MAIN "A"
CITY OF PLACERVILLE CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCQ/GVR/SDM
DESIGNER: VGM/JCQ/SDM/GVR
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C20 OF C66

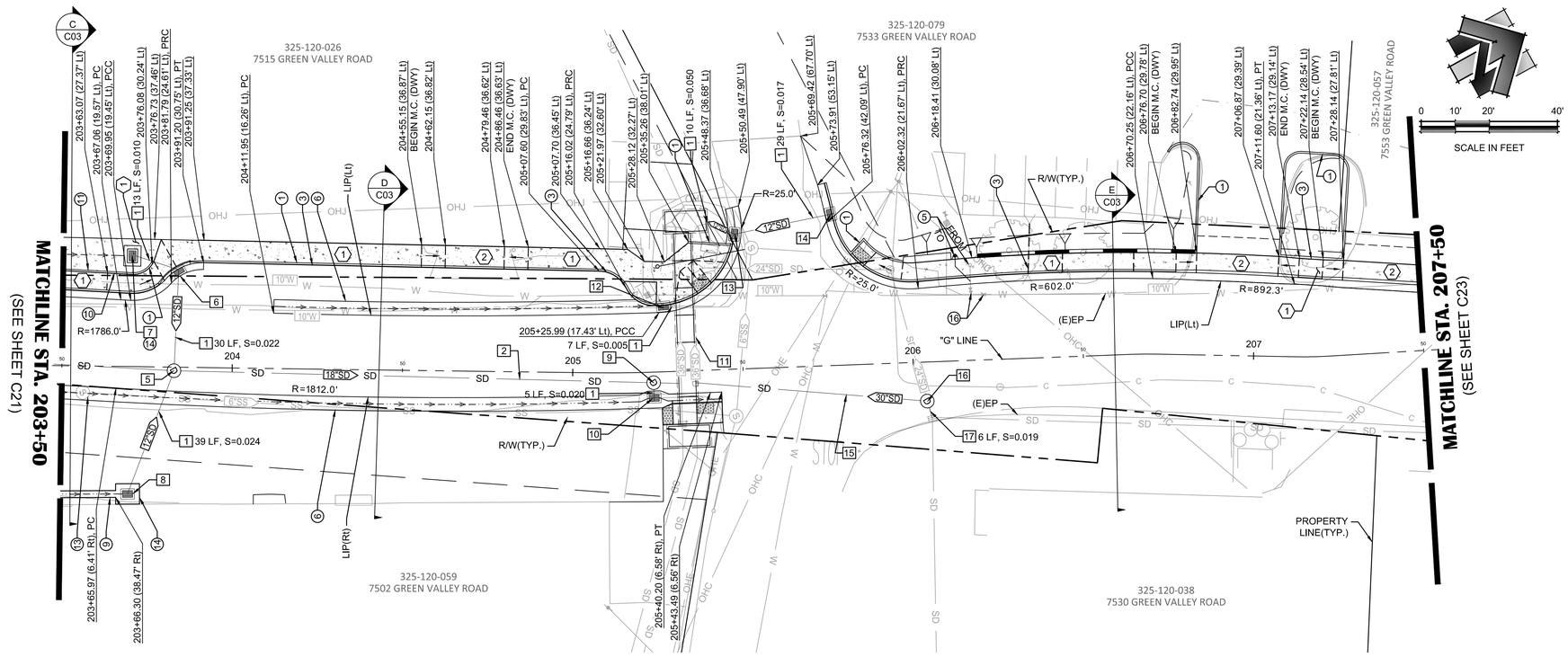
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GREEN VALLEY ROAD

STA 200+00 TO 203+50

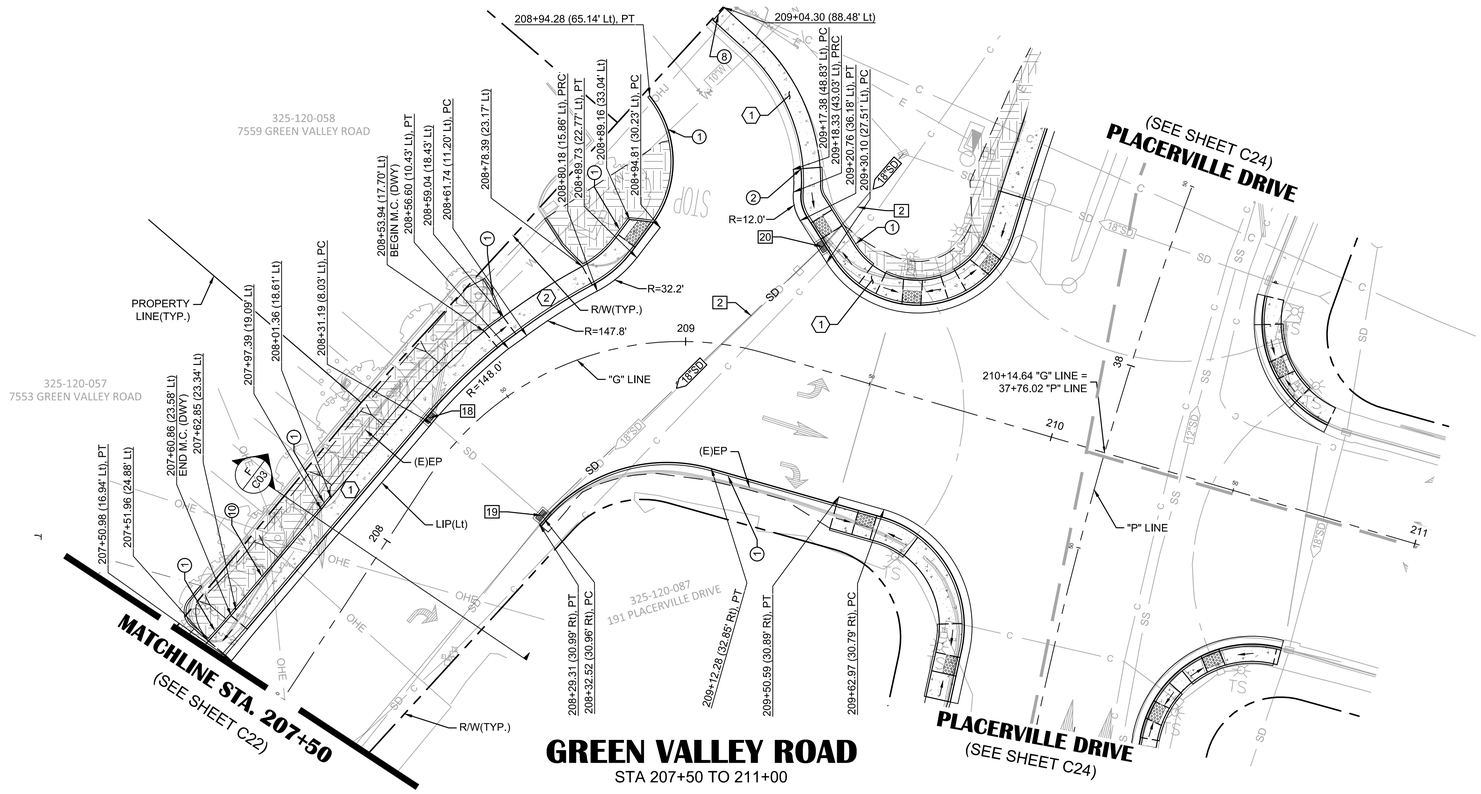
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GREEN VALLEY ROAD

STA 203+50 TO 207+50

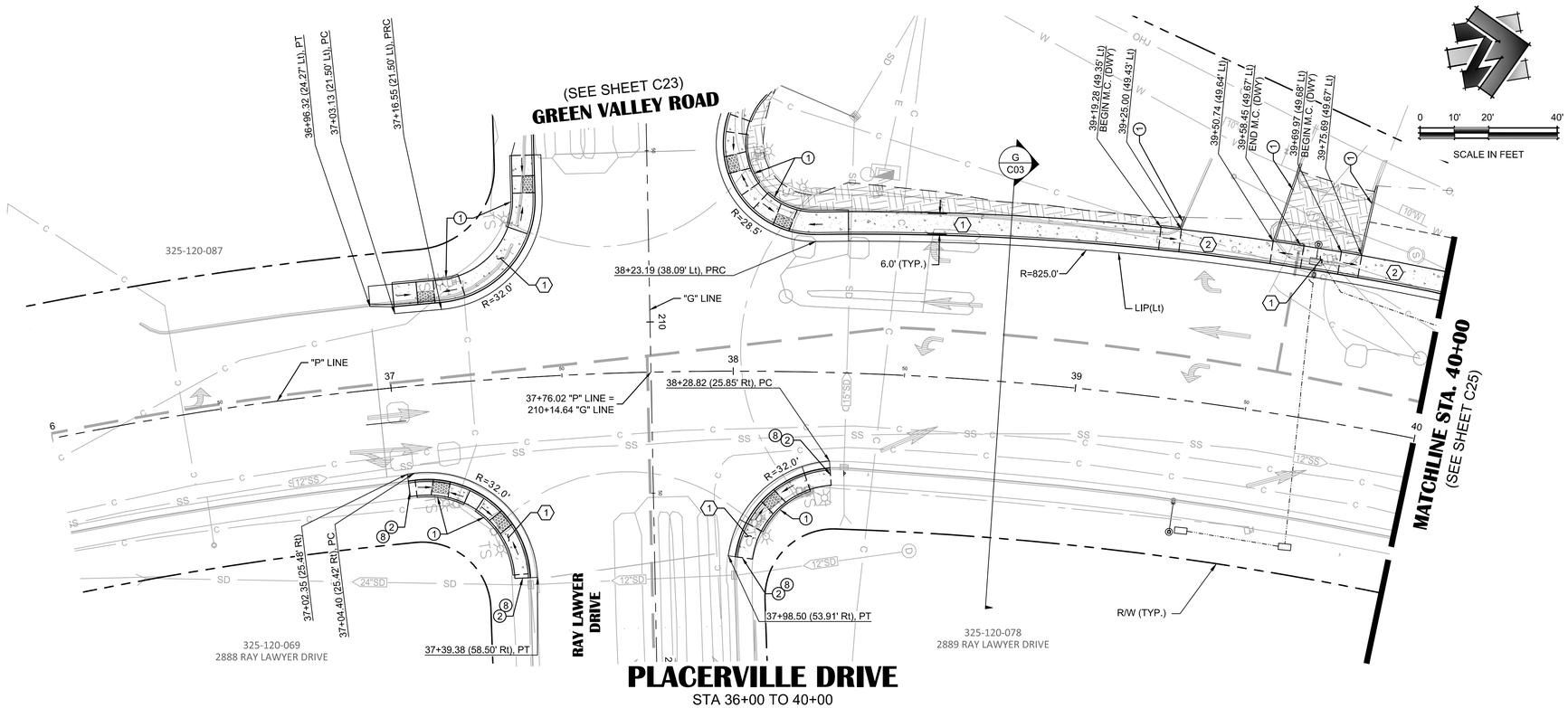
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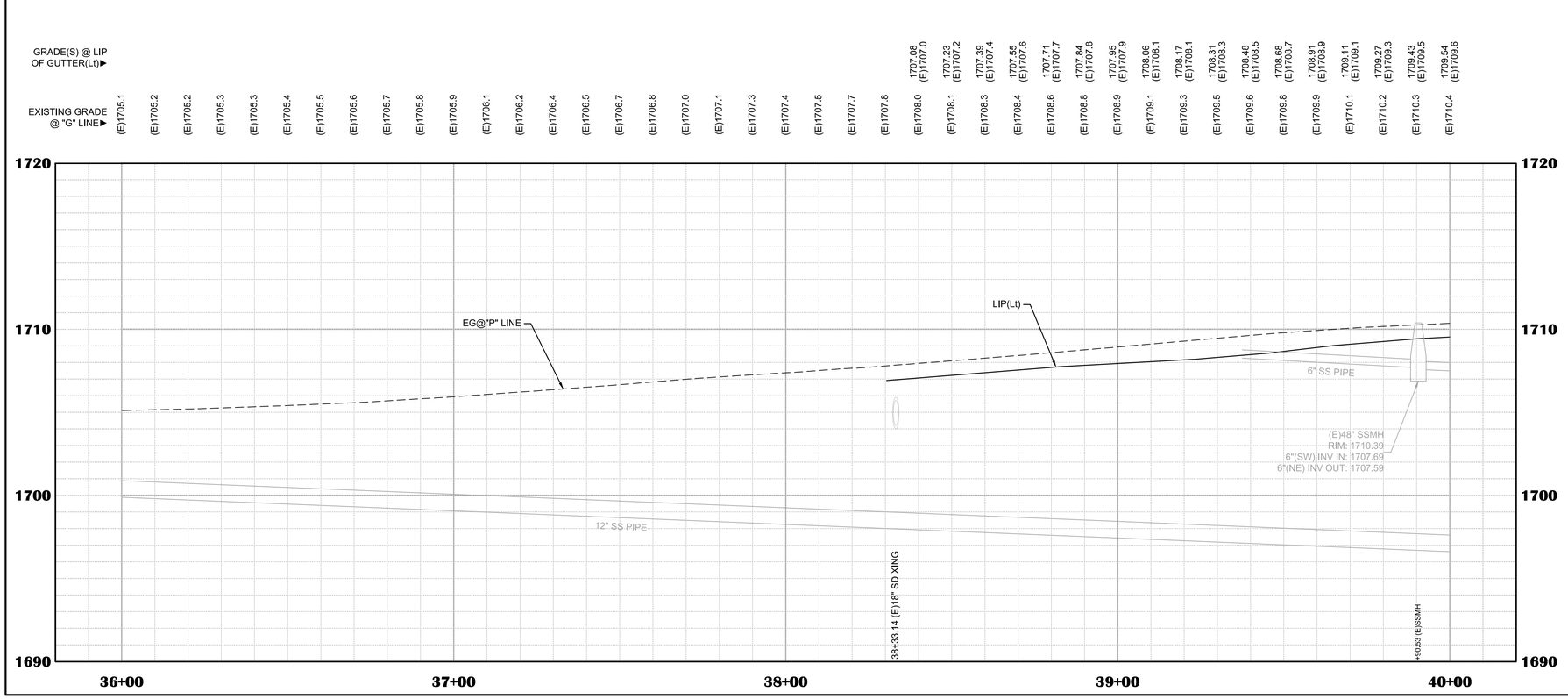
GREEN VALLEY ROAD

STA 207+50 TO 211+00

| | | |



PLACERVILLE DRIVE
STA 36+00 TO 40+00



SHEET LEGEND

SYMBOL	DESCRIPTION
1	4.0" P.C.C. / 4.0" MIN AB MINOR CONCRETE (SIDEWALK) (SEE DETAIL 27, SHEET C09)
2	6.0" P.C.C. / 2.0" MIN AB MINOR CONCRETE (DRIVEWAY) (SEE DETAIL 9, SHEET C06)
	LANDSCAPING (SEE LANDSCAPE PLANS)
	MINOR CONCRETE (CURB & GUTTER) (SEE CALTRANS TYPE A2-6, STD. PLAN A87A)
	HMA CONFORM LIMIT
	GRADING DAYLIGHT LIMIT
	(E)STORM DRAIN CLEAN (AS APPLICABLE)

CONSTRUCTION KEYNOTES:

KEY NOTE	DESCRIPTION
1	MINOR CONCRETE (CURB - TYPE A) (SEE DETAIL 6, SHEET C06)
2	CONFORM TO (E)CURB & GUTTER
8	CONFORM TO (E)SIDEWALK

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE AND "G" LINE ALIGNMENT DATA.
4. SEE CONSTRUCTION DETAILS, SHEETS C35 THRU C45 FOR ADDITIONAL GRADING AND ELEVATION INFORMATION.
5. SEE ELECTRICAL SHEETS E01 THRU E19 FOR STREETLIGHTS AND CONDUIT IMPROVEMENTS.

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE

100% SUBMITTAL
NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'

R.E.Y. ENGINEERS, Inc.
Civil Engineers | Land Surveyors | Remote Sensing
920 Sutter Street, Suite 200 Folsom, CA 95630
(916) 366-3040 Fax (916) 366-3303

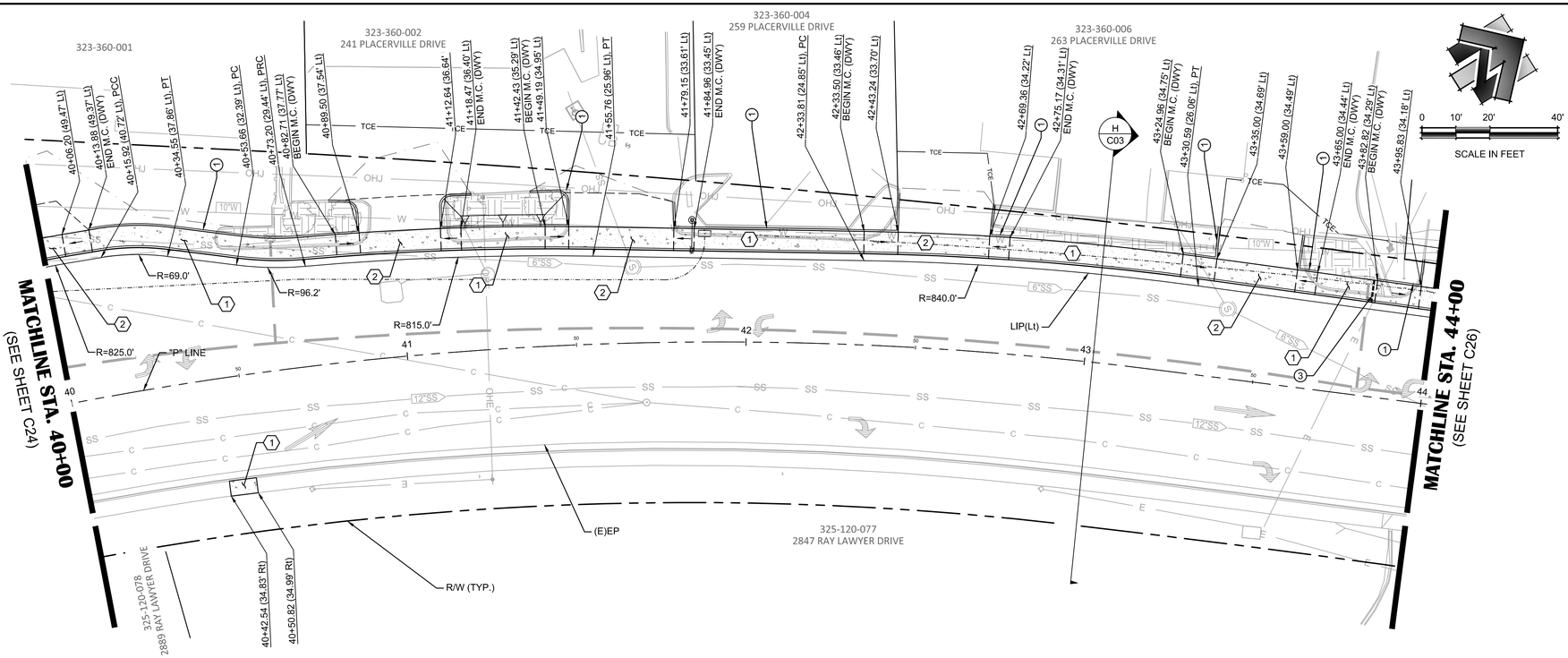
IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
LAYOUT PLAN & PROFILE
PLACERVILLE DRIVE - STA 36+00 TO 40+00
CITY OF PLACERVILLE CALIFORNIA

ENGINEER'S STAMP
JAMES N. HOPER
No. 73197
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCO/GVR/SDM
DESIGNER: VGM/JCO/SDM/GVR
REVIEWER: JWF

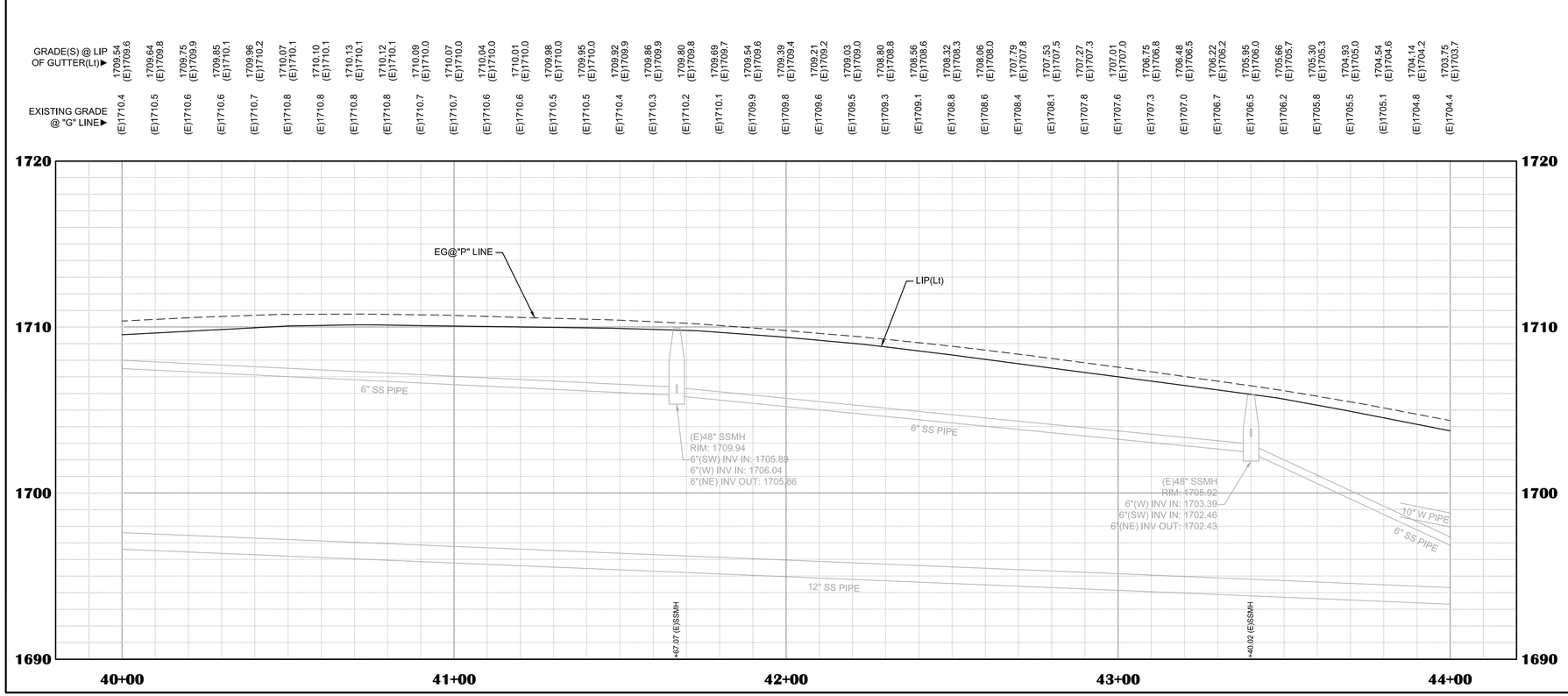
PROJECT NO.
CIP# 41816
SHEET NO. C24 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – LAYOUT P&P (PlacervilleDr).dwg Oct 08, 2025 – 4:15pm, smalone



PLACERVILLE DRIVE

STA 40+00 TO 44+00



SHEET LEGEND

SYMBOL	DESCRIPTION
1	4.0" P.C.C. / 4.0" MIN AB MINOR CONCRETE (SIDEWALK) (SEE DETAIL 27, SHEET C09)
2	6.0" P.C.C. / 2.0" MIN AB MINOR CONCRETE (DRIVEWAY) (SEE DETAIL 9, SHEET C06)
	LANDSCAPING (SEE LANDSCAPE PLANS)
	MINOR CONCRETE (CURB & GUTTER) (SEE CALTRANS TYPE A2-6, STD. PLAN A87A)
	HMA CONFORM LIMIT
	GRADING DAYLIGHT LIMIT

CONSTRUCTION KEYNOTES:

KEY NOTE	DESCRIPTION
1	MINOR CONCRETE (CURB - TYPE A) (SEE DETAIL 6, SHEET C06)
3	UNDER SIDEWALK DRAIN (SEE DETAIL 10, SHEET C07)

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
4. SEE CONSTRUCTION DETAILS, SHEETS C35 THRU C45 FOR ADDITIONAL GRADING AND ELEVATION INFORMATION.
5. SEE ELECTRICAL SHEETS E01 THRU E19 FOR STREETLIGHTS AND CONDUIT IMPROVEMENTS.

NO	REVISION	DESCRIPTION	CHECKED BY	DATE

100% SUBMITTAL
NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'

CITY OF PLACERVILLE

R.E.Y. ENGINEERS, Inc.
Civil Engineering | Land Surveying | Planning | Services
1925 Sutter Street, Suite 200 Folsom, CA 95630
(916) 364-3040 Fax (916) 364-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
LAYOUT PLAN & PROFILE
PLACERVILLE DRIVE - STA 40+00 TO 44+00
CITY OF PLACERVILLE CALIFORNIA

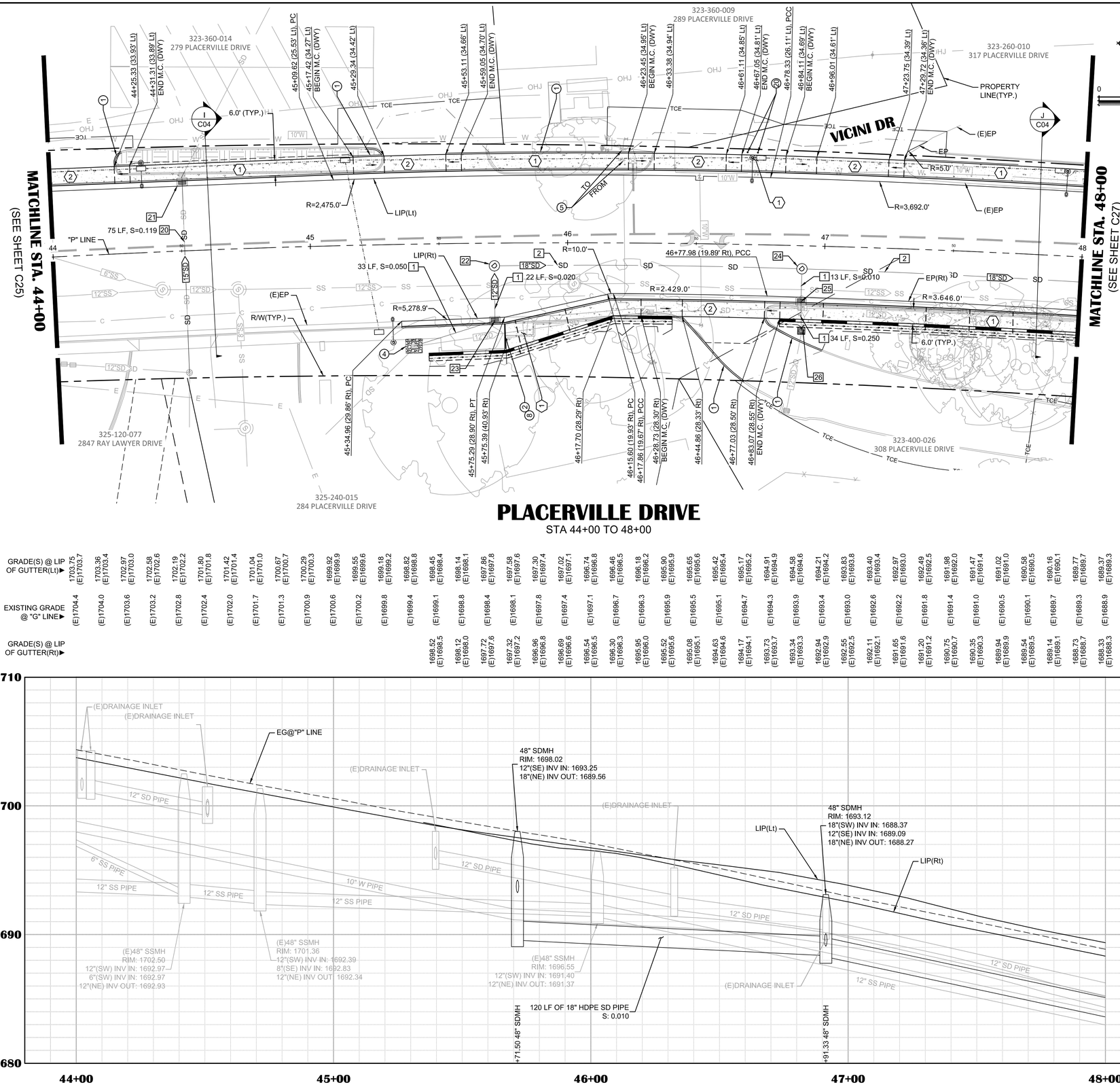
ENGINEER'S STAMP

JAMES W. JONES
No. 73197
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCQ/GV/RSDM
DESIGNER: VGM/JCQ/SDM/GVR
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C25 OF C66

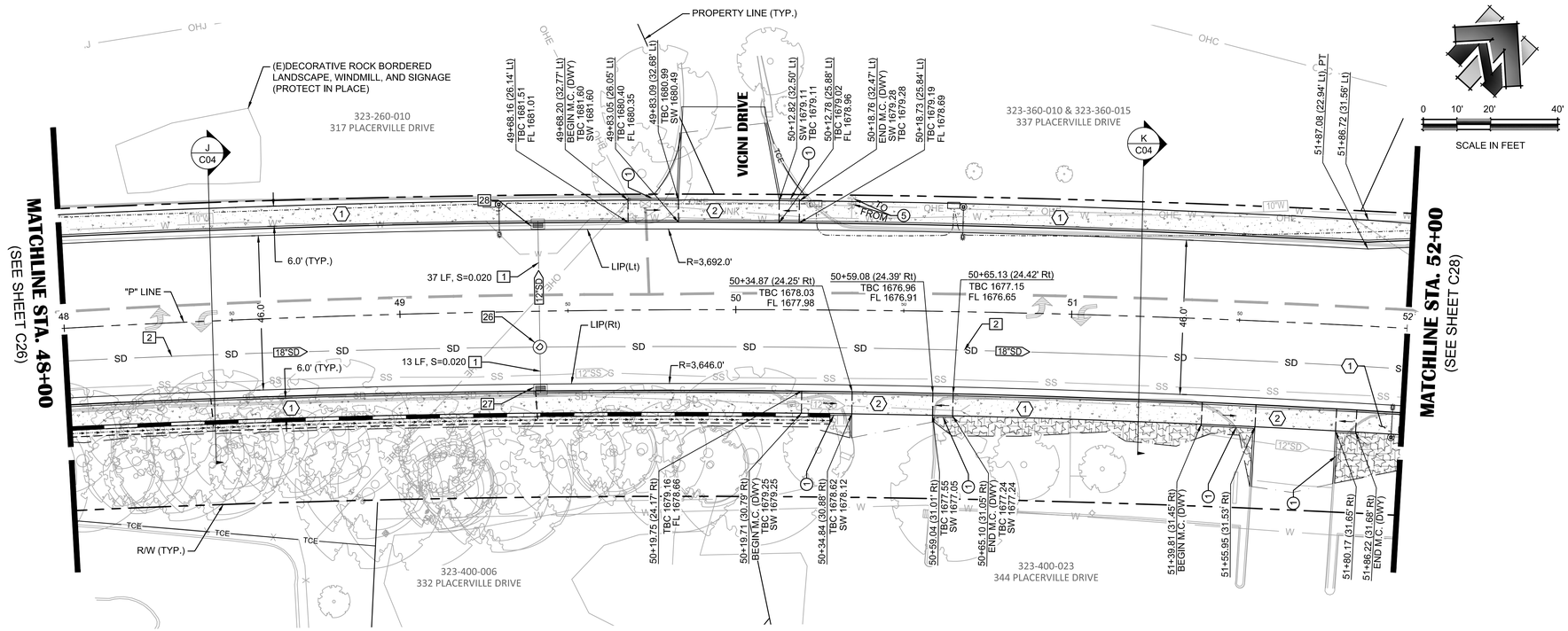
N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – LAYOUT P&P (PlacervilleDr).dwg Oct 08, 2025 – 4:15pm, smolone



PLACERVILLE DRIVE

STA 44+00 TO 48+00

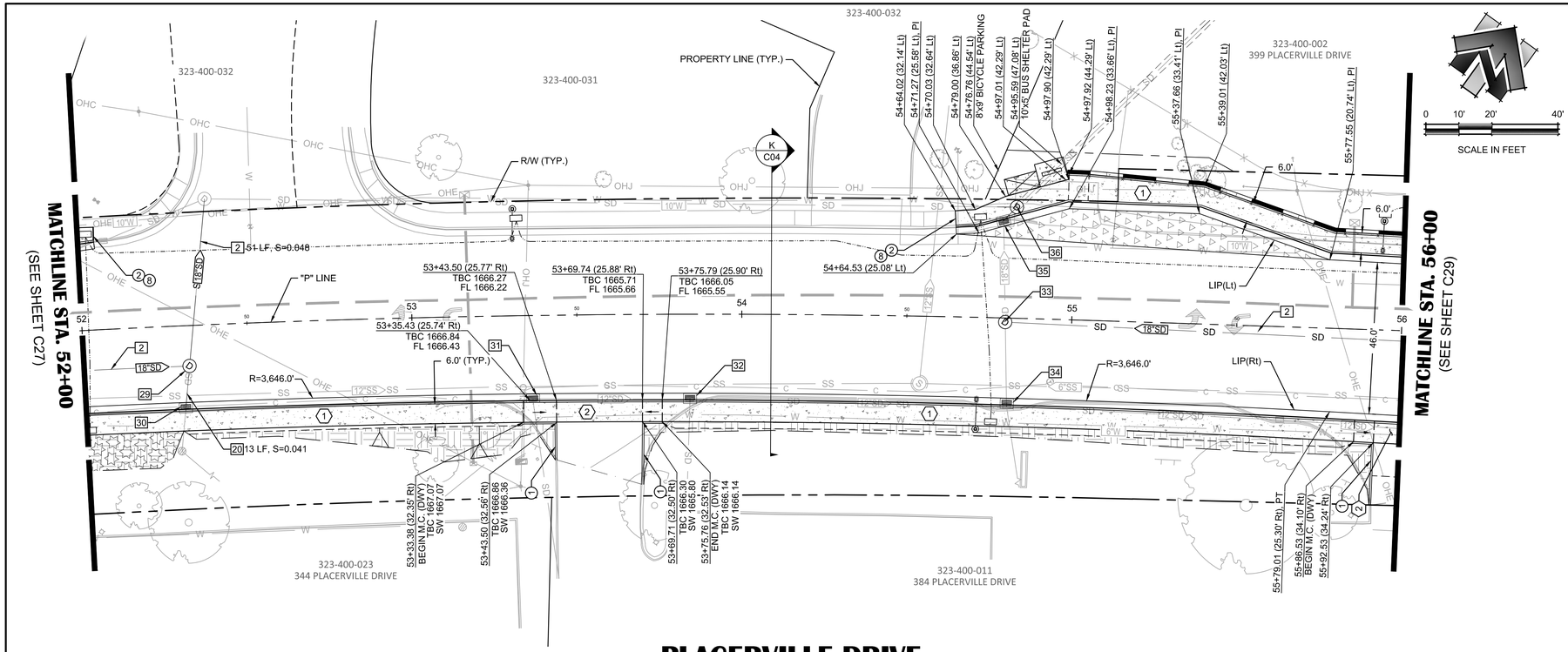
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PLACERVILLE DRIVE

STA 48+00 TO 52+00

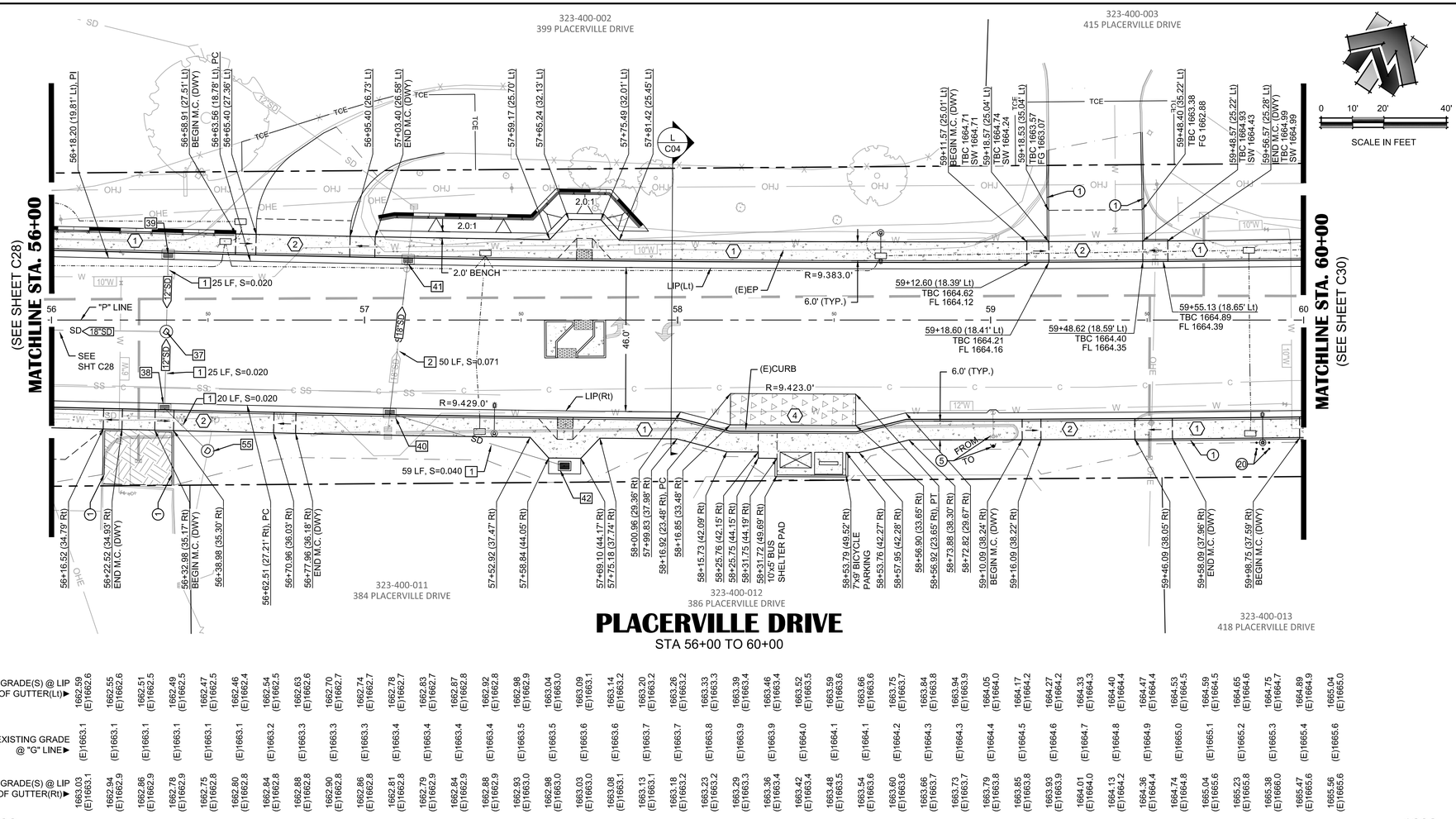
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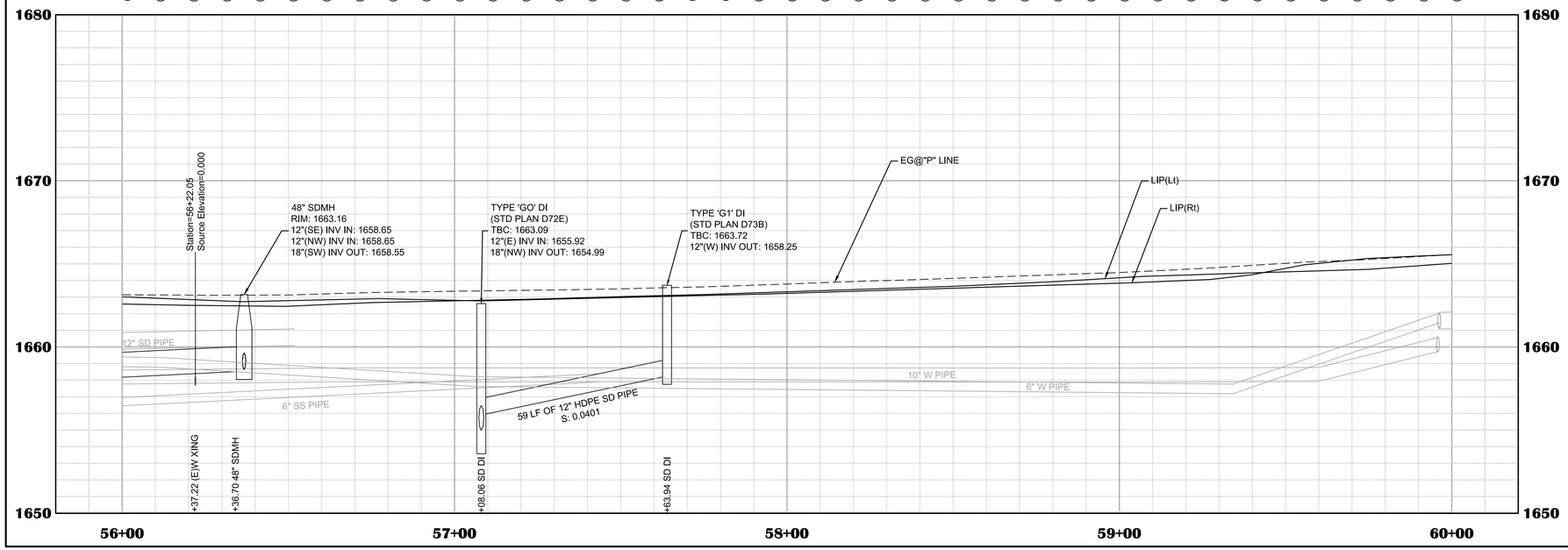


PLACERVILLE DRIVE

STA 52+00 TO 56+00

| | | |





SHEET LEGEND

SYMBOL	DESCRIPTION
1	4.0" P.C.C. / 4.0" MIN AB MINOR CONCRETE (SIDEWALK) (SEE DETAIL 27, SHEET C09)
2	6.0" P.C.C. / 2.0" MIN AB MINOR CONCRETE (DRIVEWAY) (SEE DETAIL 9, SHEET C06)
	LANDSCAPING (SEE LANDSCAPE PLANS)
4	TRANSIT STOP (P.C.C.) (SEE PAVING PLAN)
	MINOR CONCRETE (CURB & GUTTER) (SEE CALTRANS TYPE A2-6, STD. PLAN A87A)
	RETAINING WALL (SEE RETAINING WALL DETAILS, SHEETS S01 THRU S09)
	HMA CONFORM LIMIT
	GRADING DAYLIGHT LIMIT

CONSTRUCTION KEYNOTES:

KEY NOTE	DESCRIPTION
1	MINOR CONCRETE (CURB) (SEE DETAIL 6, SHEET C06)
5	RELOCATE FIRE HYDRANT (TO BE PERFORMED BY OTHERS)
20	BOLLARDS SEE DETAIL 25, SHEET C09

DRAINAGE KEYNOTES:

KEY NOTE	DESCRIPTION
1	12" HDPE SD PIPE
2	18" HDPE SD PIPE
37	STA 56+36.70 (3.71' Rt) 48" SDMH
38	STA 56+36.14 (28.24' Rt) DRAINAGE INLET (TYPE G5) TBC: 1663.09 12"(E) INV IN: 1659.14 12"(NW) INV OUT: 1659.14
39	STA 56+37.27 (21.00' Lt) DRAINAGE INLET (TYPE GO) TBC: 1662.81 12"(SE) INV OUT: 1659.14
40	STA 57+08.06 (29.77' Rt) DRAINAGE INLET (TYPE GO) TBC: 1663.09 12"(E) INV IN: 1655.92 18"(NW) INV OUT: 1654.99
41	STA 57+13.84 (19.39' Lt) DRAINAGE INLET (TYPE GO) TBC: 1663.15 18"(SE) INV IN: 1651.50
42	STA 57+63.94 (46.61' Rt) DRAINAGE INLET (TYPE G1) TBC: 1664.19 12"(W) INV OUT: 1658.25
55	STA 56+49.91 (41.78' Rt) 48" SDMH

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
4. SEE CONSTRUCTION DETAILS, SHEETS C35 THRU C45 FOR ADDITIONAL GRADING AND ELEVATION INFORMATION.
5. SEE ELECTRICAL SHEETS E01 THRU E19 FOR STREETLIGHTS AND CONDUIT IMPROVEMENTS.

NO	REVISION	DESCRIPTION	CHECKED BY	DATE
		100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'

CITY OF PLACERVILLE

R.E.Y. ENGINEERS, Inc.
Civil Engineers | Land Surveyors | Planners
1005 Sutter Street, Suite 200, Folsom, CA 95630
(916) 364-3040 Fax (916) 364-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
LAYOUT PLAN & PROFILE
PLACERVILLE DRIVE - STA 56+00 TO 60+00
CITY OF PLACERVILLE
CALIFORNIA

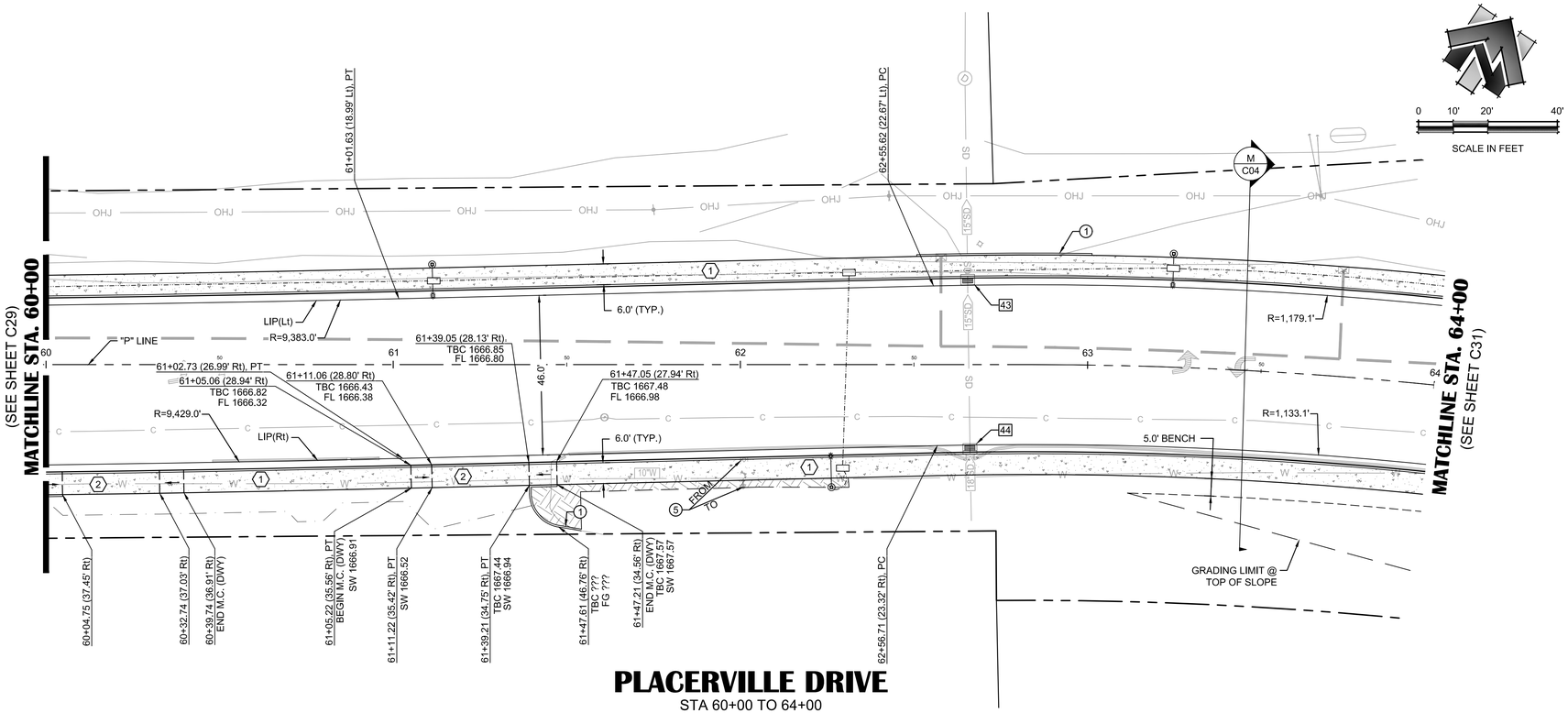
ENGINEER'S STAMP

REGISTERED PROFESSIONAL ENGINEER
JAMES W. TOSKA
No. 73197
CIVIL
STATE OF CALIFORNIA

DRAWING INFO
DATE: 10-08-2025
DRAFTER: JCO/DVR/SGM
DESIGNER: VGM/JCO/SGM/SVR
REVIEWER: JWT

PROJECT NO.
CIP# 41816
SHEET NO. C29 OF C66

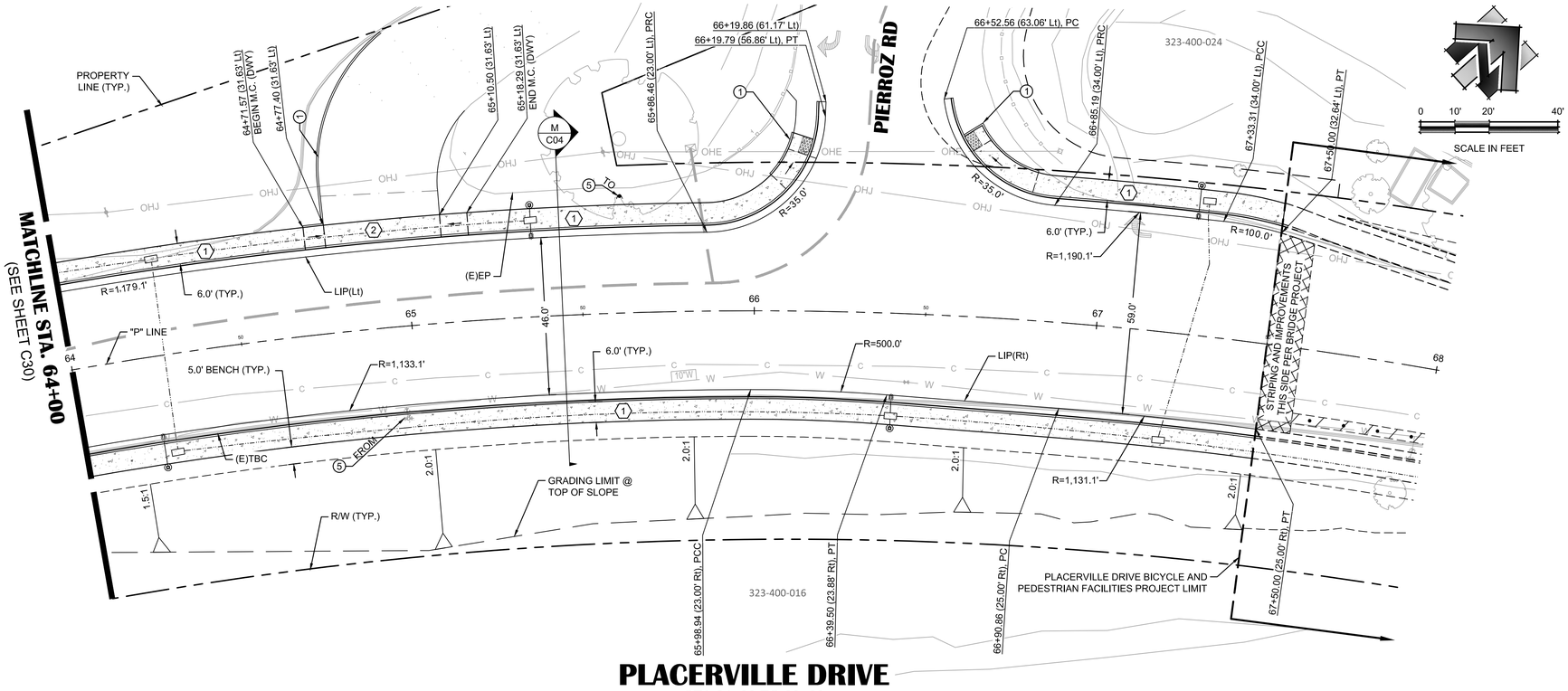
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PLACERVILLE DRIVE

STA 60+00 TO 64+00

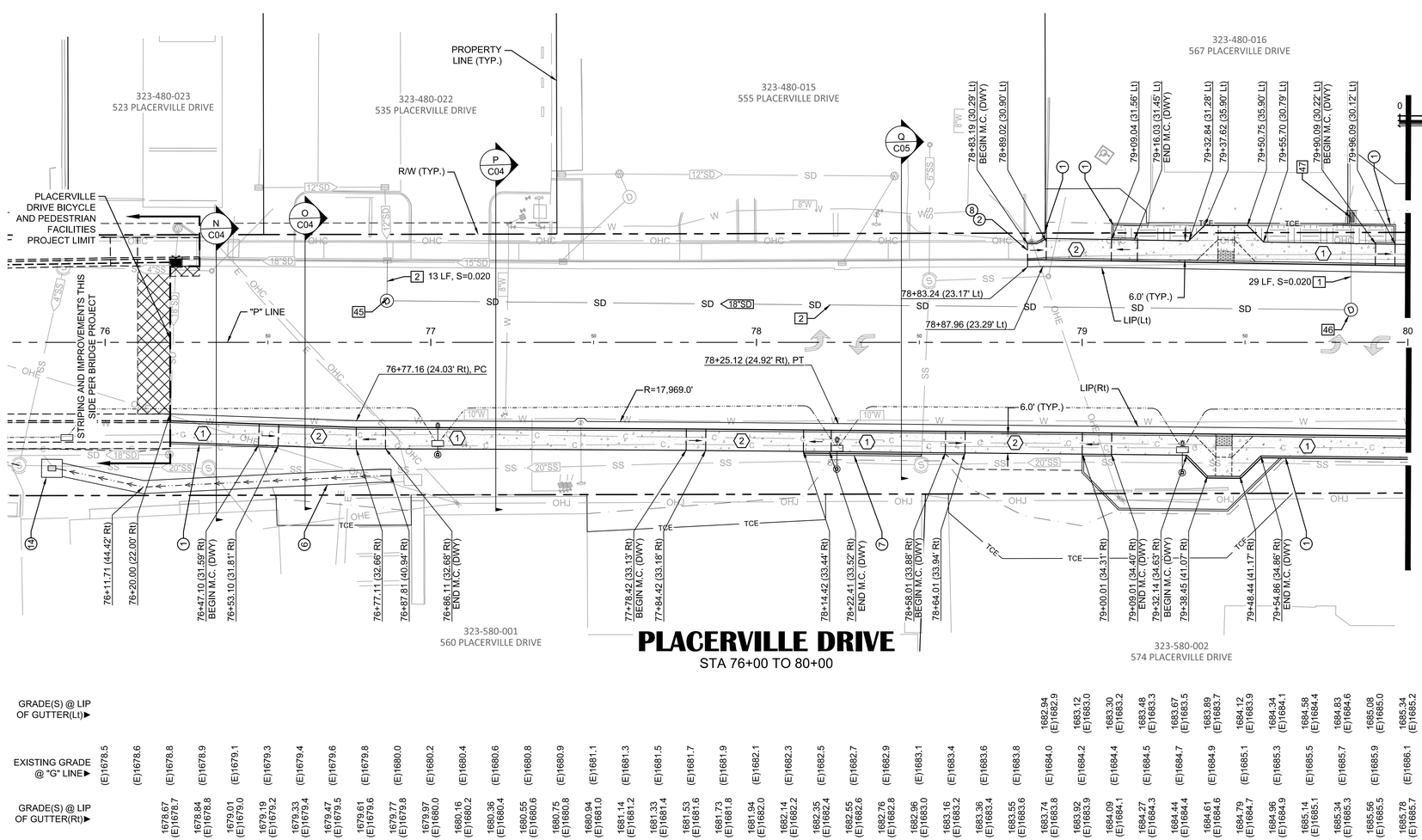
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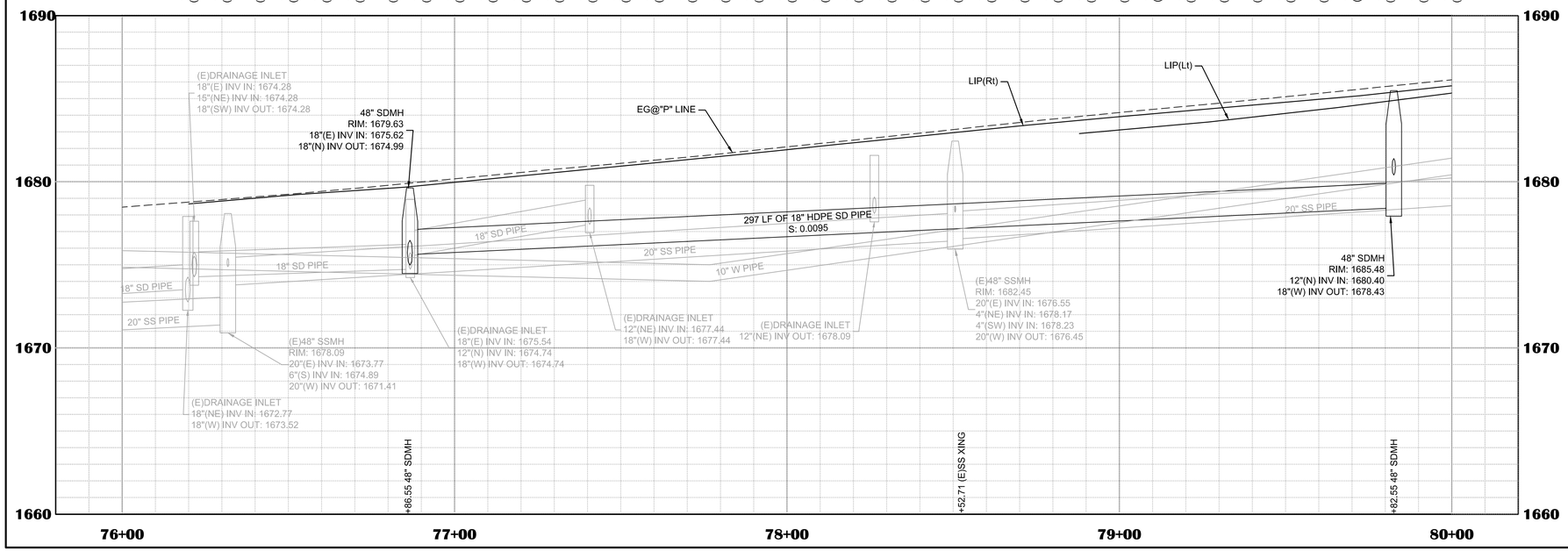


PLACERVILLE DRIVE

STA 64+00 TO 68+00

| | | |





SHEET LEGEND

	DESCRIPTION
1	4.0" P.C.C. / 4.0" MIN AB MINOR CONCRETE (SIDEWALK) (SEE DETAIL 27, SHEET C09)
2	6.0" P.C.C. / 2.0" MIN AB MINOR CONCRETE (DRIVEWAY) (SEE DETAIL 9, SHEET C06)
	LANDSCAPING (SEE LANDSCAPE PLANS)
	MINOR CONCRETE (CURB & GUTTER) (SEE CALTRANS TYPE A2-6, STD. PLAN A87A)
	HMA CONFORM LIMIT
	GRADING DAYLIGHT LIMIT

CONSTRUCTION KEYNOTES:

KEY NOTE	DESCRIPTION
1	MINOR CONCRETE (CURB - TYPE A) (SEE DETAIL 6, SHEET C06)
2	CONFORM TO (E)CURB & GUTTER
6	4' WIDE MINOR CONCRETE (VALLEY GUTTER) (SEE DETAIL 3, SHEET C06)
7	MINOR CONCRETE (MODIFIED CURB & GUTTER) (SEE DETAIL 5, SHEET C06)
8	CONFORM TO (E)SIDEWALK
14	DI WITH CONCRETE COLLAR

DRAINAGE KEYNOTES:

KEY NOTE	DESCRIPTION
1	12" HDPE SD PIPE
2	18" HDPE SD PIPE
45	STA 76+86.55 (12.75' Lt) 48" SDMH
46	STA 79+82.55 (10.00' Lt) 48" SDMH
44	STA 79+82.55 (38.39' Lt) DRAINAGE INLET (TYPE GO) TBC: 1684.94 12"(S) INV OUT: 1680.97

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
4. SEE CONSTRUCTION DETAILS, SHEETS C35 THRU C45 FOR ADDITIONAL GRADING AND ELEVATION INFORMATION.
5. SEE ELECTRICAL SHEETS E01 THRU E19 FOR STREETLIGHTS AND CONDUIT IMPROVEMENTS.

NO	REVISION	DESCRIPTION	CHECKED BY	DATE

100% SUBMITTAL
NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'

CITY OF PLACERVILLE

R.E.Y. ENGINEERS, Inc.
Civil Engineers • Land Surveyors • Planners
925 Sutter Street, Suite 200 Folsom, CA 95630
(916) 306-3040 Fax (916) 306-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
LAYOUT PLAN & PROFILE
PLACERVILLE DRIVE - STA 75+75 TO 80+00
CITY OF PLACERVILLE
CALIFORNIA

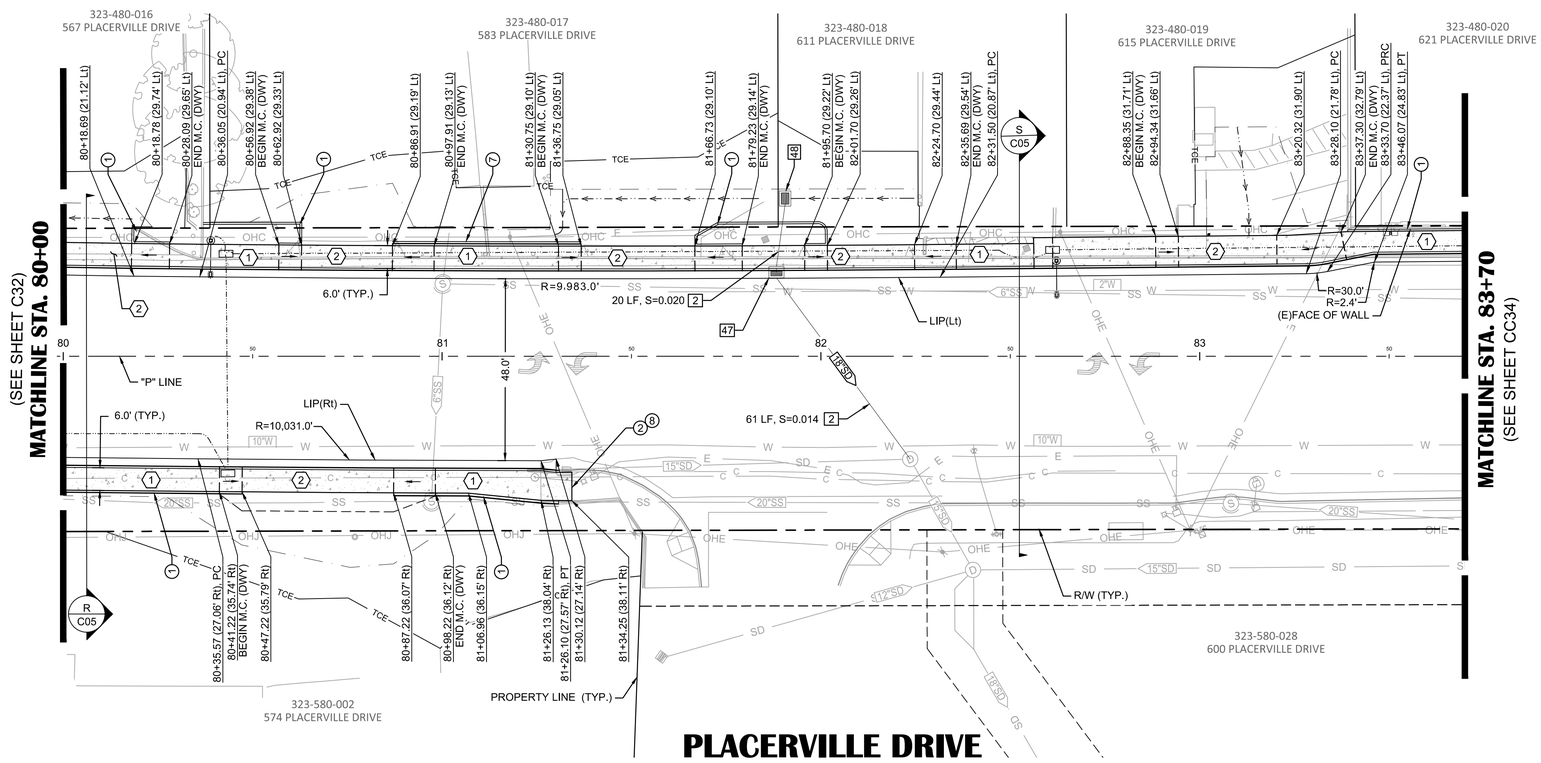
ENGINEER'S STAMP

PROFESSIONAL ENGINEER
JAMES N. JOSTA
No. 73197
CIVIL
STATE OF CALIFORNIA

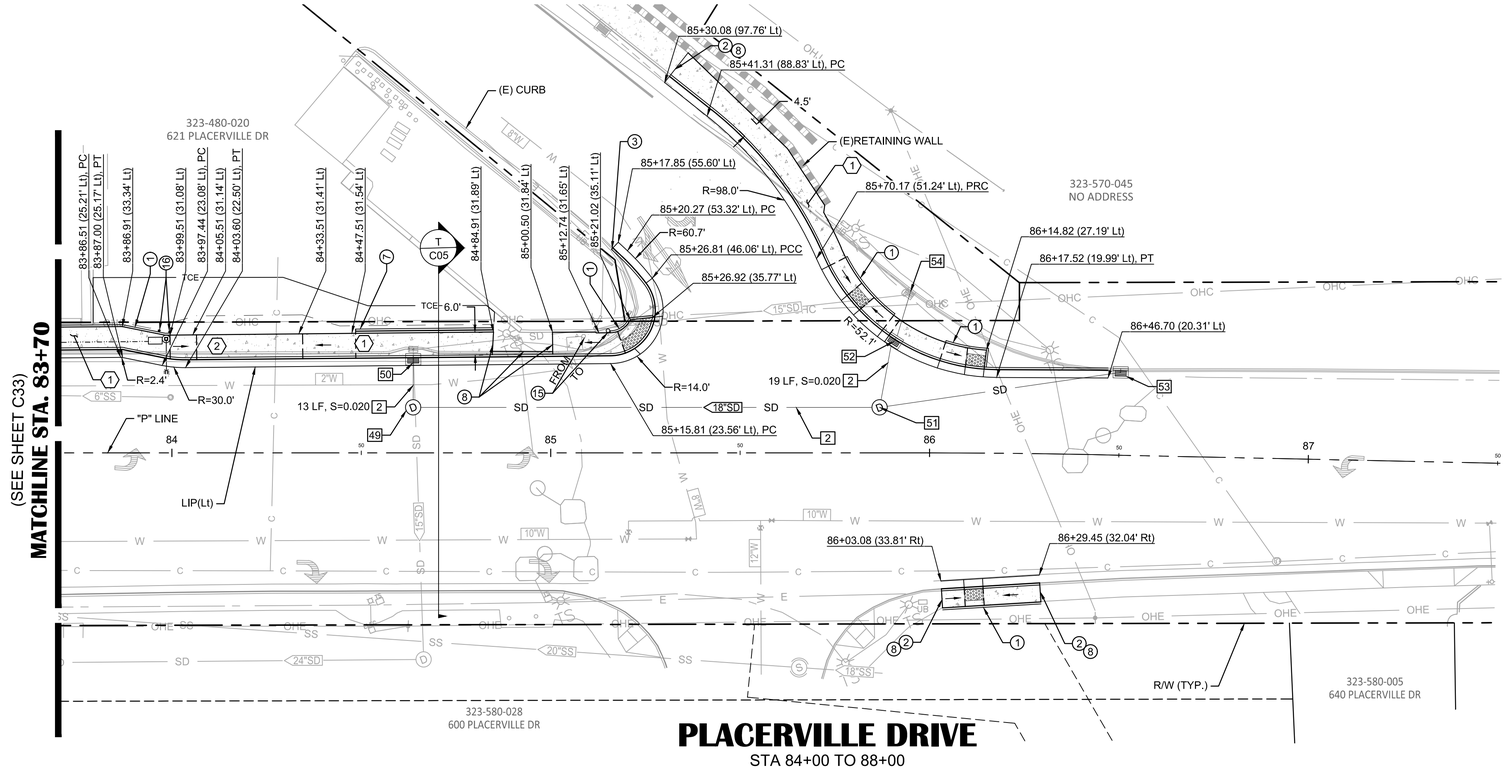
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DATE: 10-08-2025
DRAFTER: JCQ/GVR/SDM
DESIGNER: VGM/JCQ/SDM/GVR
REVIEWER: JNR

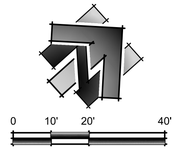
PROJECT NO.
CIP# 41816
SHEET NO. C32 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – LAYOUT P&P (PlacervilleDr).dwg Oct 08, 2025 – 4:16pm, smolone


323-480-016
567 PLACERVILLE DRIVE
323-480-017
583 PLACERVILLE DRIVE
323-480-018
611 PLACERVILLE DRIVE
323-480-019
615 PLACERVILLE DRIVE
323-480-020
621 PLACERVILLE DRIVE
(SEE SHEET C32)
MATCHLINE STA. 80+00
MATCHLINE STA. 83+70
(SEE SHEET CC34)
80+18.69 (21.12' Lt)
80+18.78 (29.74' Lt)
80+28.89 (29.65' Lt)
END M.C. (DWY)
80+36.05 (20.94' Lt), PC
80+56.92 (29.38' Lt)
BEGIN M.C. (DWY)
80+62.92 (29.33' Lt)
80+86.91 (29.19' Lt)
80+97.91 (29.13' Lt)
END M.C. (DWY)
81+30.75 (29.10' Lt)
BEGIN M.C. (DWY)
81+36.75 (29.05' Lt)
81+66.73 (29.10' Lt)
81+79.23 (29.14' Lt)
END M.C. (DWY)
81+95.70 (29.22' Lt)
BEGIN M.C. (DWY)
82+01.70 (29.26' Lt)
82+24.70 (29.44' Lt)
82+35.69 (29.54' Lt)
END M.C. (DWY)
82+31.50 (20.87' Lt), PC
82+88.35 (31.71' Lt)
BEGIN M.C. (DWY)
82+94.34 (31.66' Lt)
83+20.32 (31.90' Lt)
83+28.10 (21.78' Lt), PC
83+37.30 (32.79' Lt)
END M.C. (DWY)
83+53.70 (22.37' Lt), PRC
83+46.07 (24.83' Lt), PT
TCE
OHC
OHE
OHJ
SS
SD
W
C
E
6.0' (TYP.)
R=9.983.0'
20 LF, S=0.020 2
47
LIP(Lt)
R=30.0'
R=2.4'
(E)FACE OF WALL
"P" LINE
LIP(Rt)
R=10,031.0'
61 LF, S=0.014 2
48.0'
R/W (TYP.)
80+35.57 (27.06' Rt), PC
80+41.22 (35.74' Rt)
BEGIN M.C. (DWY)
80+47.22 (35.79' Rt)
80+87.22 (36.07' Rt)
80+98.22 (36.12' Rt)
END M.C. (DWY)
81+06.96 (36.15' Rt)
81+26.13 (38.04' Rt), PT
81+26.10 (27.57' Rt), PT
81+30.12 (27.14' Rt)
81+34.25 (38.11' Rt)
PROPERTY LINE (TYP.)
323-580-002
574 PLACERVILLE DRIVE
323-580-028
600 PLACERVILLE DRIVE
PLACERVILLE DRIVE
STA 80+00 TO 83+70

| | | |





SHEET LEGEND

	DESCRIPTION
①	4.0" P.C.C. / 4.0" MIN AB MINOR CONCRETE (SIDEWALK) (SEE DETAIL 27, SHEET C09)
②	6.0" P.C.C. / 2.0" MIN AB MINOR CONCRETE (DRIVEWAY) (SEE DETAIL 9, SHEET C06)
	LANDSCAPING (SEE LANDSCAPE PLANS)
	MINOR CONCRETE (CURB & GUTTER) (SEE CALTRANS TYPE A2-6, STD. PLAN A87A)
	HMA CONFORM LIMIT
	GRADING DAYLIGHT LIMIT

CONSTRUCTION KEYNOTES:

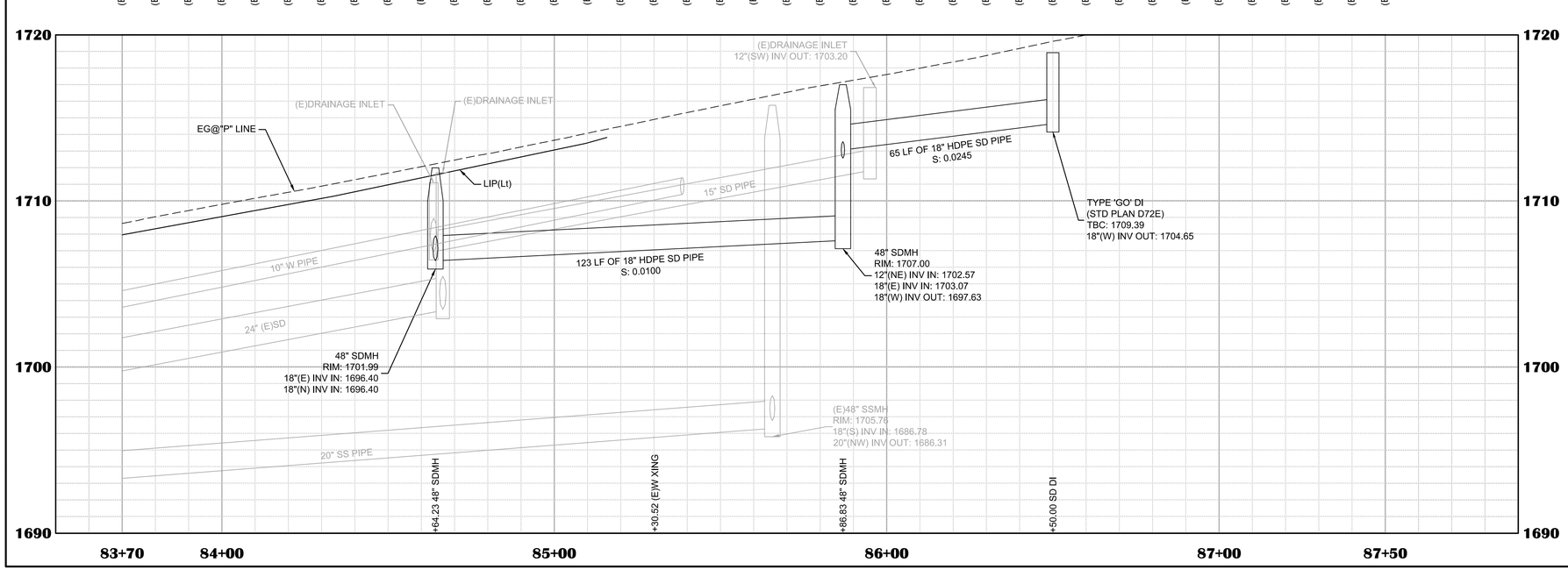
KEY NOTE	DESCRIPTION
①	MINOR CONCRETE (CURB - TYPE A) (SEE DETAIL 6, SHEET C07)
②	CONFORM TO (E)CURB & GUTTER
⑦	MINOR CONCRETE (MODIFIED CURB & GUTTER) (SEE DETAIL 5, SHEET C06)
⑧	CONFORM TO (E)SIDEWALK
⑮	RELOCATE PUSH BUTTON
⑯	BOLLARD (SEE DETAIL 25, SHEET C09)

DRAINAGE KEYNOTES:

KEY NOTE	DESCRIPTION
1	12" HDPE SD PIPE
2	18" HDPE SD PIPE
49	STA 84+64.23 (12.00' Lt) 48" SDMH
50	STA 84+63.78 (24.69' Lt) DRAINAGE INLET (TYPE GO) TBC: 1701.90 18"(S) INV OUT: 1696.65
51	STA 85+86.83 (12.00' Lt) 48" SDMH
52	STA 85+90.68 (29.59' Lt) DRAINAGE INLET (TYPE GO) TBC: 1707.20 12"(NE) INV IN: 1702.93 12"(SW) INV OUT: 1702.93
53	STA 86+50.00 (21.86' Lt) DRAINAGE INLET (TYPE GO) TBC: 1709.39 18"(W) INV OUT: 1704.65
54	STA 85+94.95 (42.35' Lt) CONNECT TO EXISTING INLET DRAINAGE INLET (TYPE F) (TOP ONLY) TBC: 1704.78 12"(SW) INV OUT: 1703.20

SHEET NOTES:

1. QUANTITIES SHOWN REPRESENT IMPROVEMENTS DISPLAYED ON THIS SHEET, UNLESS OTHERWISE NOTED.
2. STATION AND OFFSET LABELS DISPLAYED ON THIS SHEET ARE REFERENCED TO "P" LINE, UNLESS OTHERWISE NOTED.
3. REFER TO PROJECT CONTROL SHEETS C10 & C11 FOR "P" LINE ALIGNMENT DATA.
4. ADDITIONAL SD INFORMATION TO BE ADDED FOLLOWING CCTV RESULTS AND INVESTIGATION OF EXISTING SD SYSTEM.
4. SEE CONSTRUCTION DETAILS, SHEETS C35 THRU C45 FOR ADDITIONAL GRADING AND ELEVATION INFORMATION.
5. SEE ELECTRICAL SHEETS E01 THRU E19 FOR STREETLIGHTS AND CONDUIT IMPROVEMENTS.



NO.	REVISION DESCRIPTION	CHECKED BY	DATE
	100% SUBMITTAL NOT FOR CONSTRUCTION		

DRAWING SCALE
HOR. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'

CITY OF PLACERVILLE ENCANTO DE LA SIERRA

R.E.Y. ENGINEERS, Inc.
Civil Engineers | Land Surveyors | Planning Services
1825 Sutter Street, Suite 200 Folsom, CA 95630
(916) 364-3040 Fax (916) 364-3303

IMPROVEMENT PLANS FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
LAYOUT PLAN & PROFILE
PLACERVILLE DRIVE - STA 83+70 TO 88+00
CITY OF PLACERVILLE CALIFORNIA

ENGINEER'S STAMP
JACQUELYN R. QUIST
No. 73197
CIVIL
STATE OF CALIFORNIA

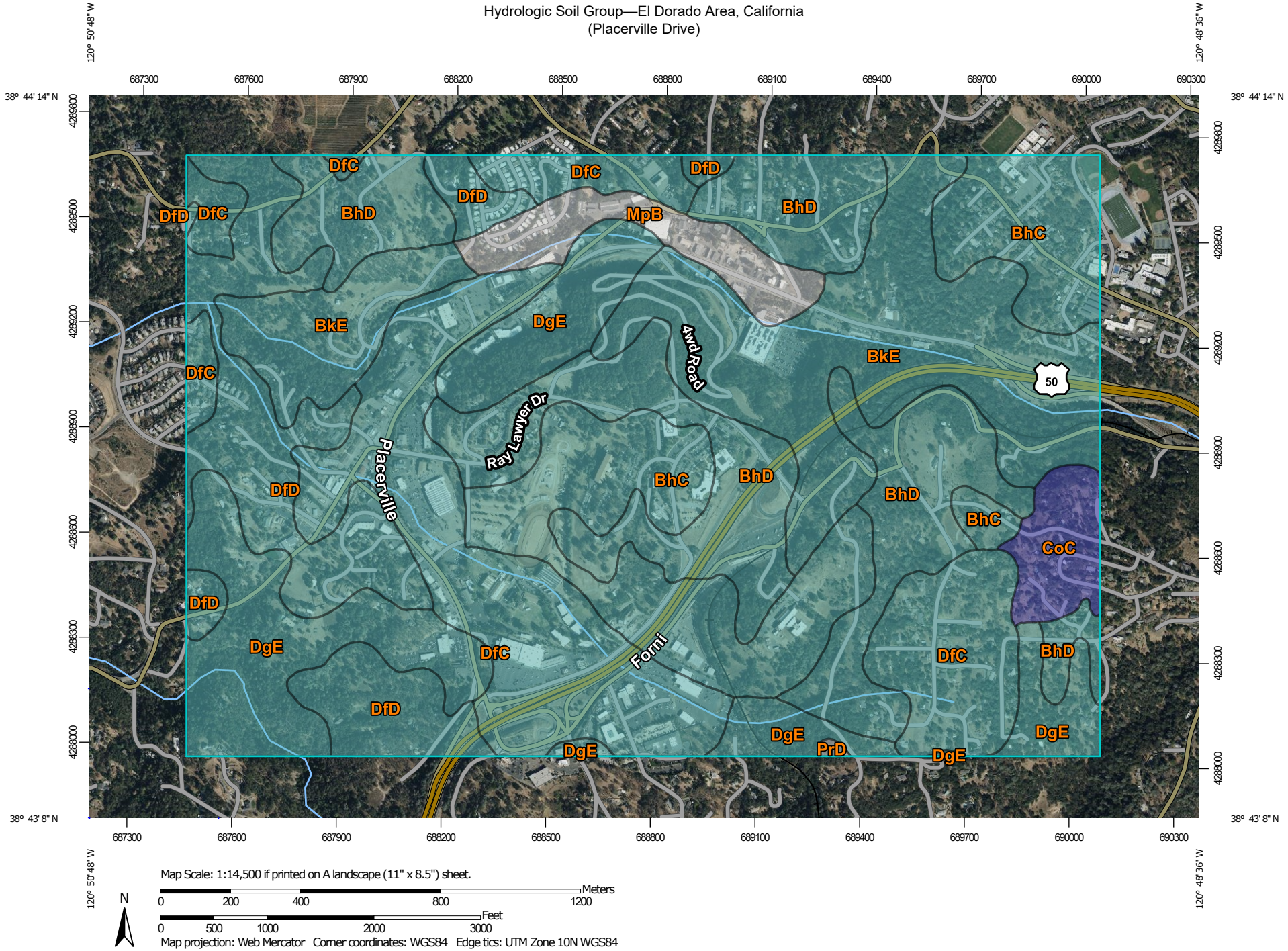
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DATE: 10.08.2025
DRAFTER: JCQ/GV/RSDM
DESIGNER: VGM/JCQ/SDM/GV/R
REVIEWER: JWF

PROJECT NO.
CIP# 41816
SHEET NO. C34 OF C66

N:\2332 – Drake Haglan\004 – Placerville Drive\10 – CAD Drawings\Improvement Plans\2332.004 – LAYOUT P&P (PlacervilleDr).dwg Oct 08, 2025 – 4:17pm, smolone

Appendix B Soil Maps

Hydrologic Soil Group—El Dorado Area, California
(Placerville Drive)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Dorado Area, California
Survey Area Data: Version 16, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BhC	Boomer gravelly loam, 3 to 15 percent slopes	C	154.3	13.9%
BhD	Boomer gravelly loam, 8 to 35 percent slopes, dry	C	216.0	19.4%
BkE	Boomer very rocky loam, 30 to 50 percent slopes	C	200.9	18.0%
CoC	Cohasset cobbly loam, 3 to 15 percent slopes	B	23.8	2.1%
DfC	Diamond Springs very fine sandy loam, 9 to 15 percent slopes	C	215.5	19.4%
DfD	Diamond Springs very fine sandy loam, 15 to 30 percent slopes	C	126.7	11.4%
DgE	Diamond Springs very rocky very fine sandy loam, 3 to 50 percent slopes	C	140.6	12.6%
MpB	Mixed alluvial land		34.8	3.1%
PrD	Placer diggings		0.8	0.1%
Totals for Area of Interest			**1,113.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C Watershed Maps

LEGEND

(SCALED FOR CLARITY)

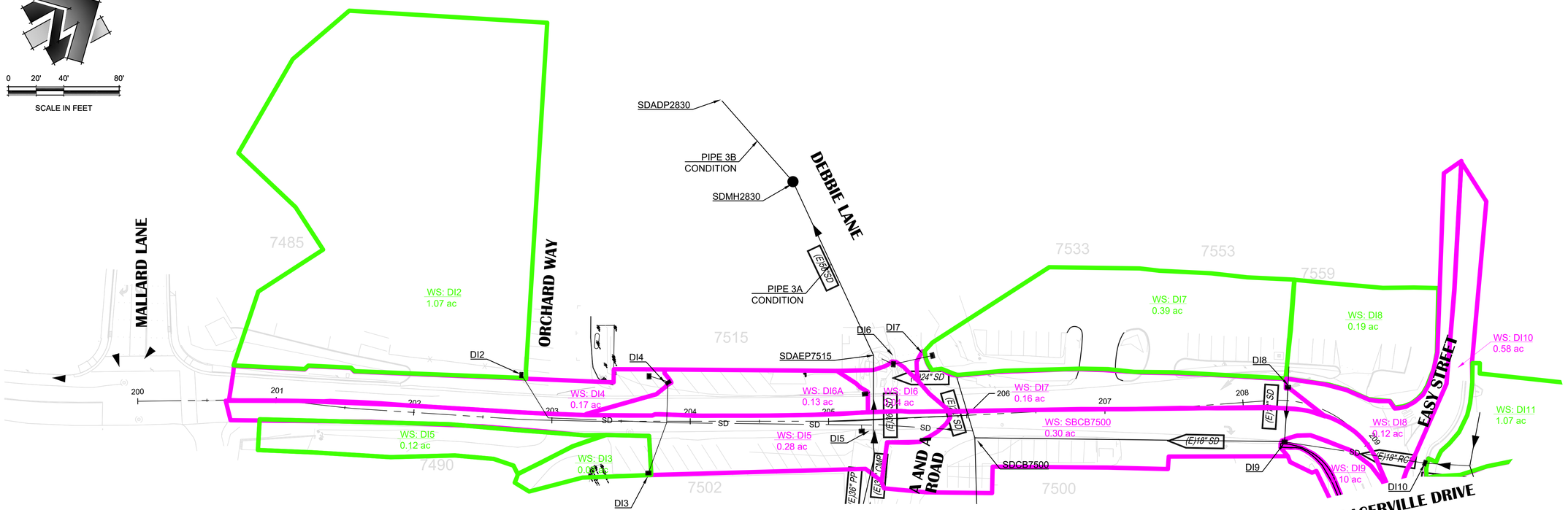
- Off-site Watershed
- On-site Watershed
- Flow Direction

NOTES

1. PIPE SIZE INFORMATION IS BASED ON SURVEY AND FIELD INSPECTIONS.
2. ALL DRAINAGE STRUCTURES AND PIPE LOCATIONS ARE APPROXIMATE. AND NEED TO BE FIELD VERIFIED.

0 20' 40' 80'

SCALE IN FEET



GREEN VALLEY ROAD

NO.	REVISION	DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

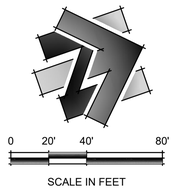
HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

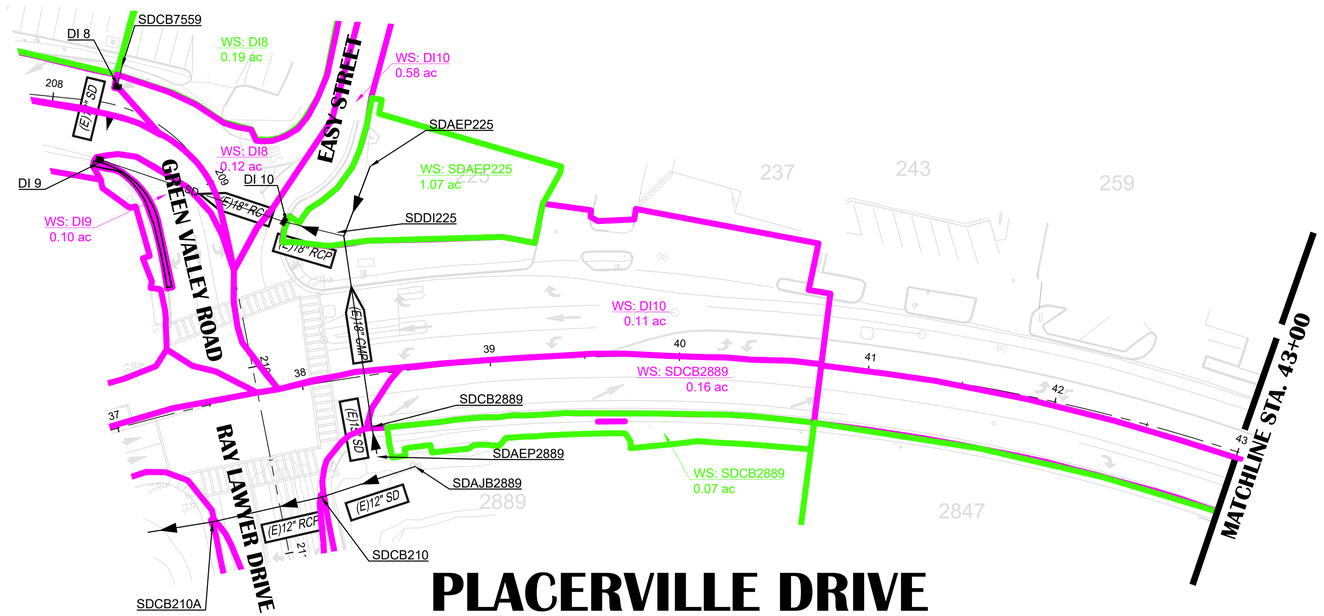
EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 84+00 TO STA 92+00 // GREEN VALLEY RD
CITY OF PLACERVILLE CA

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 1 OF 7

G:\Projects\Y2018\P18112 Placerville Dr Bike and Ped\Dwg\BS\2332.004 - (E)SD_System exhibit - WSM.dwg Sep 02, 2025 - 10:13am, PYIM





NOTES

1. PIPE SIZE INFORMATION IS BASED ON SURVEY AND FIELD INSPECTIONS.
2. ALL DRAINAGE STRUCTURES AND PIPE LOCATIONS ARE APPROXIMATE. AND NEED TO BE FIELD VERIFIED.

LEGEND

(SCALED FOR CLARITY)

- Off-site Watershed
- On-site Watershed
- Flow Direction

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 28+00 TO STA 43+00
CITY OF PLACERVILLE CA

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Tim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 2 OF 7

G:\Projects\Y2018\P18112 Placerville Dr Bike and Ped\Dwg\BS\2332.004 - (E)SD_System exhibit - WSM.dwg Sep 02, 2025 - 9:32am, PYM

0 20' 40' 80'

SCALE IN FEET

HANGTOWN CREEK

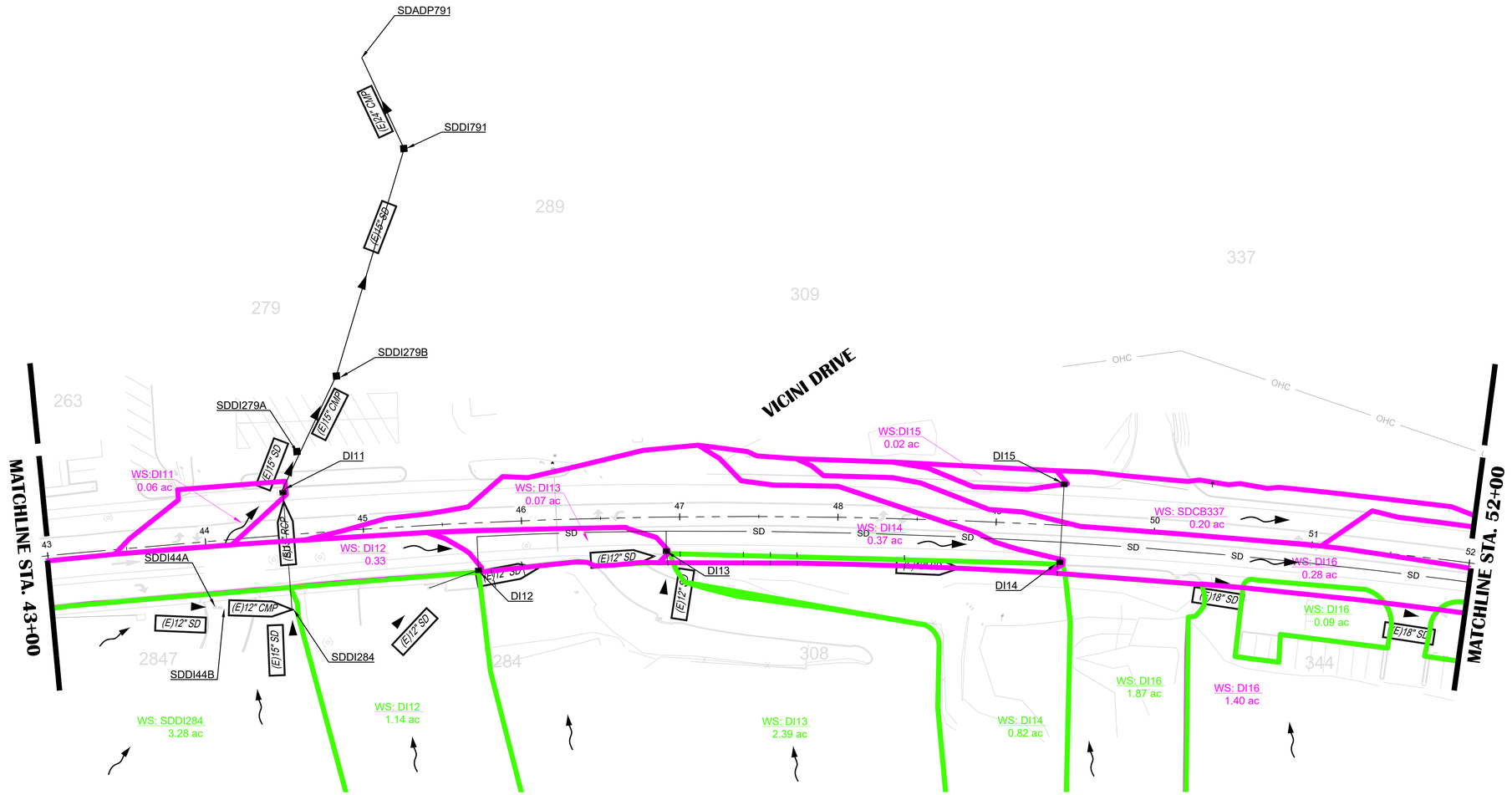
NOTES

1. PIPE SIZE INFORMATION IS BASED ON SURVEY AND FIELD INSPECTIONS.
2. ALL DRAINAGE STRUCTURES AND PIPE LOCATIONS ARE APPROXIMATE. AND NEED TO BE FIELD VERIFIED.

LEGEND

(SCALED FOR CLARITY)

- Off-site Watershed
- On-site Watershed
- Flow Direction



PLACERVILLE DRIVE

NO.	REVISION DESCRIPTION	CHECKED BY	DATE
	EXHIBIT		

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

CITY OF PLACERVILLE ESTABLISHED 1854

HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 43+00 TO STA 52+00
CITY OF PLACERVILLE **CA**

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO. 2332.004
SHEET NO. 3 OF 7

G:\Projects\Y2018\P18112 Placerville Dr Bike and Ped\Dwg\BS\2332.004 - (E)SD_System exhibit - WSM.dwg Sep 02, 2025 - 9:30am, PYIM

0 20' 40' 80'

SCALE IN FEET

HANGTOWN CREEK

SDADP399

(E)48" SD

PIPE 9A
CONDITION

SDAEP399

SDADP399

(E)42" SD

SDADP57

(E)24" CMP

(E)12" CMP

SDDI57

SDMH337

SDDI55
BURIED

DI20

DI22

DI24

WS: DI24
0.35 ac

(E)12" SD

(E)18" SD

WS: DI20
0.19 ac

WS: DI22
0.20 ac

SDCB337

WS: SDCB337
0.20 ac

MATCHLINE STA. 52+00

(E)54" CMP

(E)12" RCP

SD

TO SD

DI18

DI17

WS: DI17
0.07 ac

WS: DI19
0.07 ac

WS: DI21
0.15 ac

DI23

WS: DI23
0.51 ac

WS: DI16
0.28 ac

SDAEP344

DI16

SDDI334

(E)12" SD

(E)12" CMP

WS: DI19
0.10 ac

DI19

WS: DI19
0.22 ac

SDCB56

(E)12" SD

DI21

(E)54" RCP

SDDI386

(E)54" CMP

DI32

SDCB386

WS: DI32
0.64 ac

WS: DI23
0.49 ac

WS: DI23
0.35 ac

WS: SDDI386
0.35 ac

WS: DI18
0.91 ac

WS: DI16
1.87 ac

WS: DI18
2.31 ac

WS: DI23
2.50 ac

WS: DI32
5.45 ac

WS: DI23
10.27 ac

WS: SDDI386
2.01 ac

MATCHLINE STA. 61+00

345 349 337 399 415 344 384 386 416

OHC

PLACERVILLE DRIVE

NOTES

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LEGEND

(SCALED FOR CLARITY)

- Off-site Watershed
- On-site Watershed
- Flow Direction

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

CITY OF PLACERVILLE

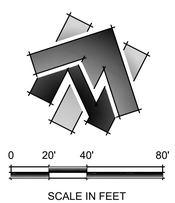
HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

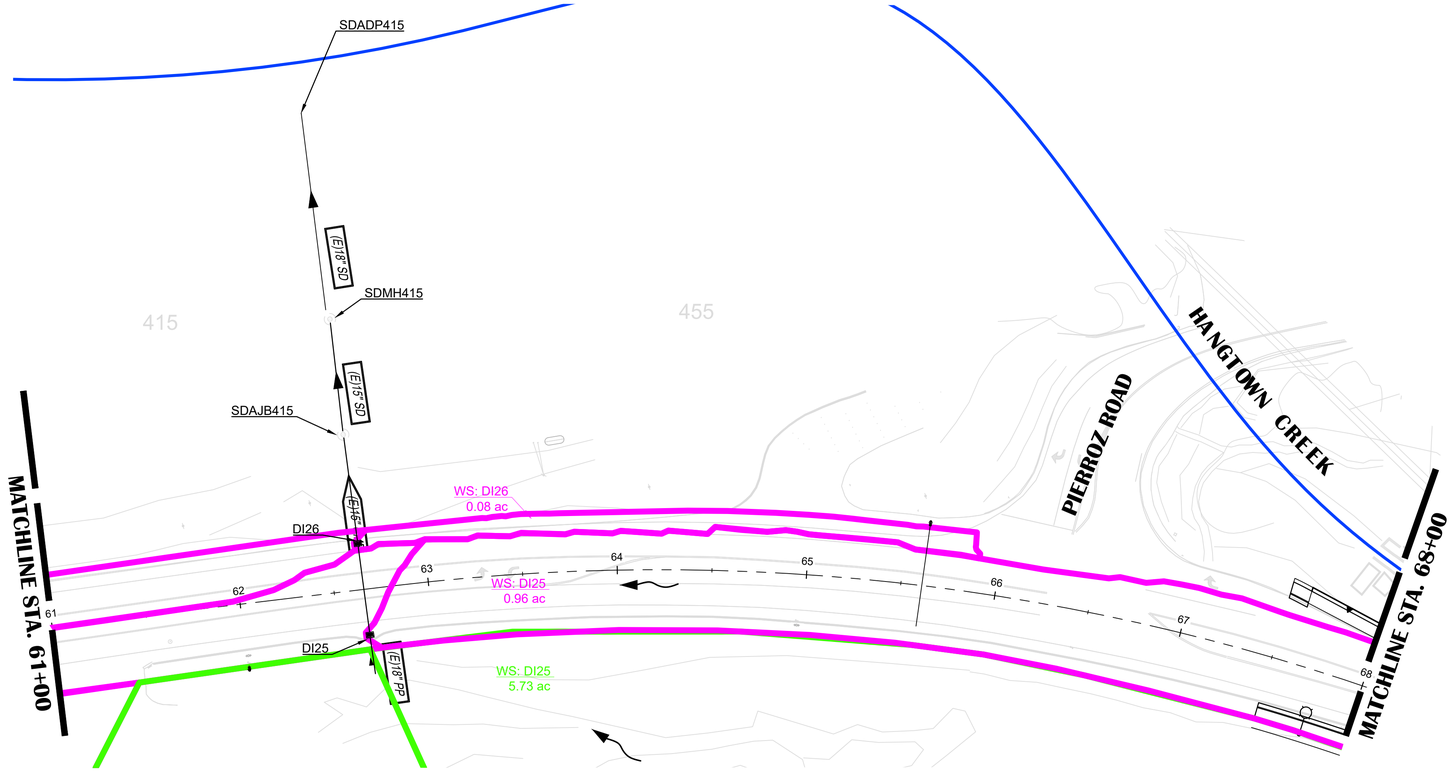
EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 52+00 TO STA 61+00
CITY OF PLACERVILLE **CA**

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 4 OF 7

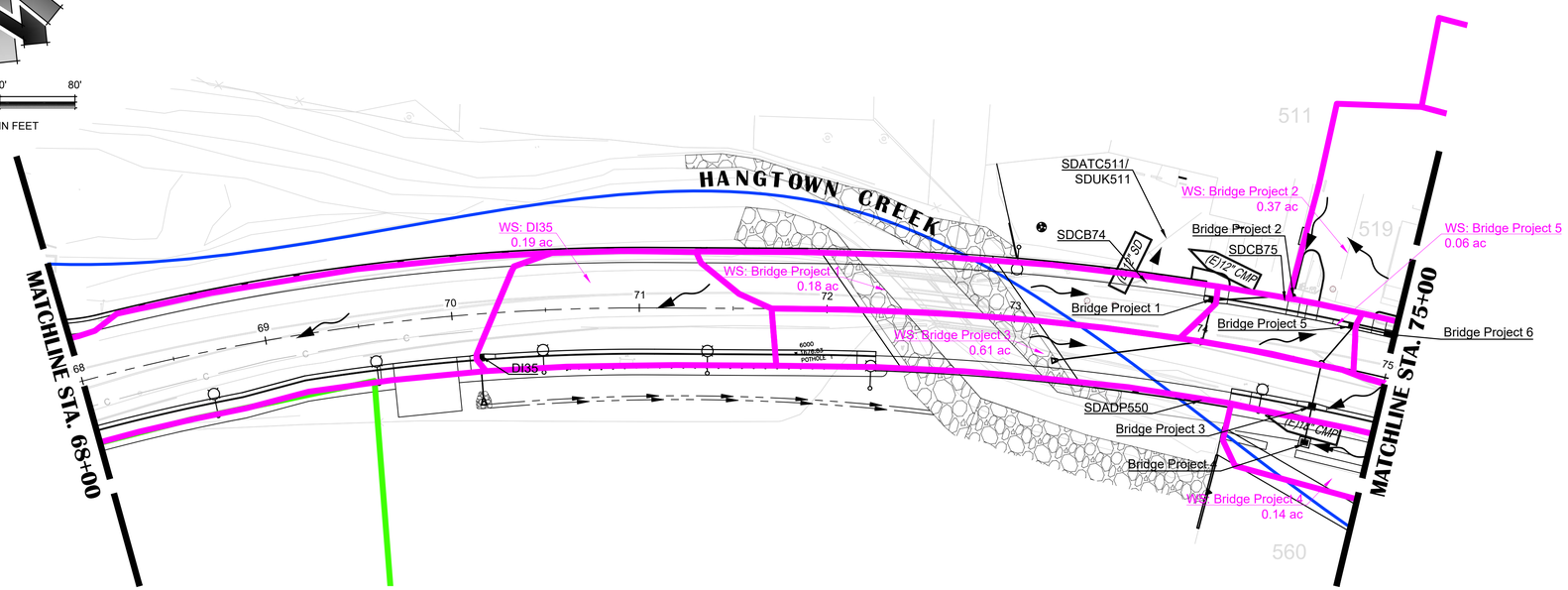
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PLACERVILLE DRIVE





PLACERVILLE DRIVE

NOTES

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LEGEND

(SCALED FOR CLARITY)

- Off-site Watershed
- On-site Watershed
- Flow Direction

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

CITY OF PLACERVILLE

HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING AND PROPOSED STORM DRAIN SYSTEM
STA 61+00 TO STA 75+00
CITY OF PLACERVILLE CA

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 5 OF 7

G:\Projects\V2018\P18112 Placerville Dr Bike and Ped\Dwg\BS\2332.004 - (E)SD_System exhibit - WSM.dwg Sep 02, 2025 - 10:37am, PYIM

0 20' 40' 80'

SCALE IN FEET

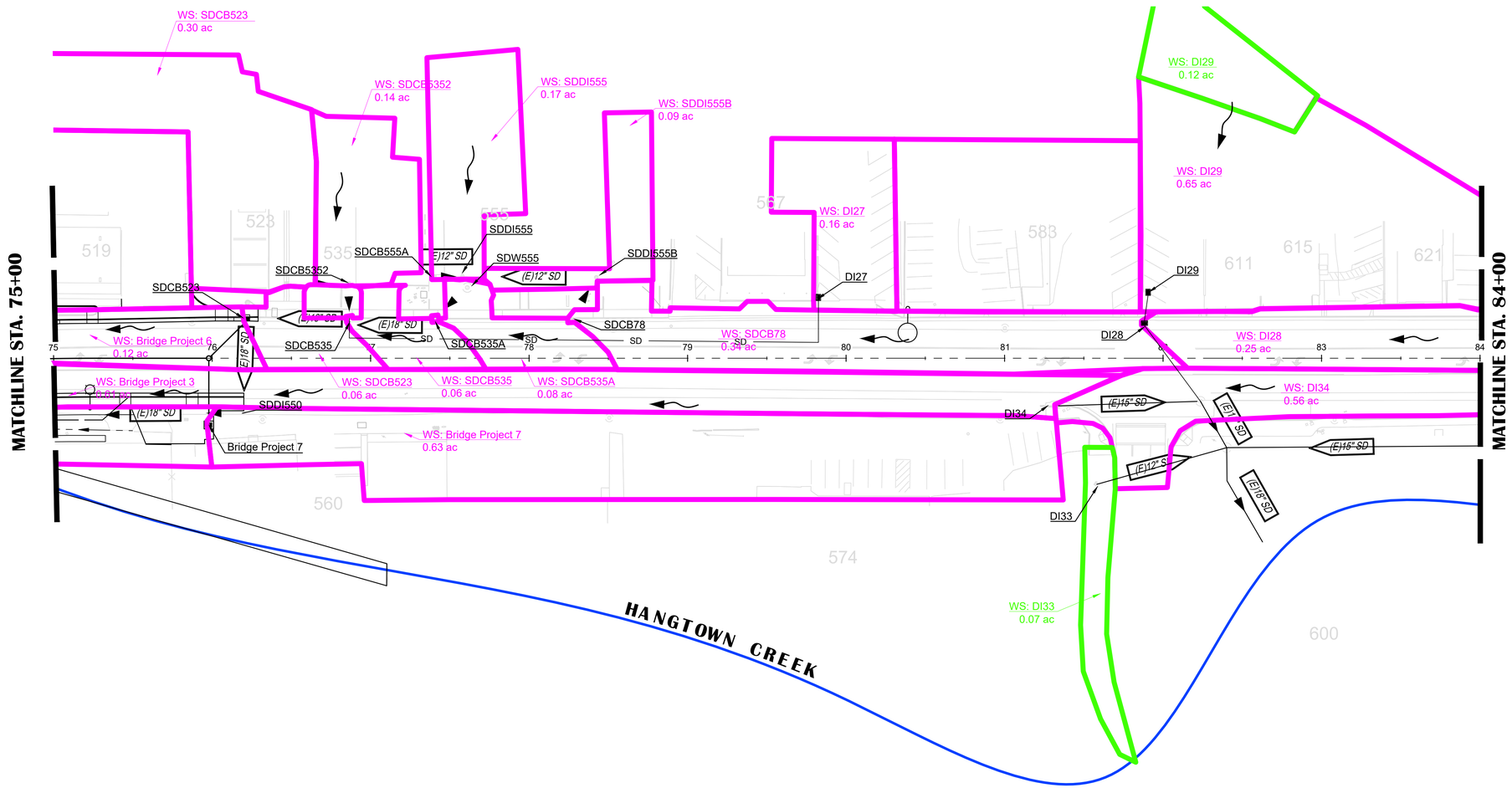
NOTES

1. PIPE SIZE INFORMATION IS BASED ON SURVEY AND FIELD INSPECTIONS.
2. ALL DRAINAGE STRUCTURES AND PIPE LOCATIONS ARE APPROXIMATE. AND NEED TO BE FIELD VERIFIED.

LEGEND

(SCALED FOR CLARITY)

- Off-site Watershed
- On-site Watershed
- Flow Direction



PLACERVILLE DRIVE

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING AND PROPOSED STORM DRAIN SYSTEM
STA 75+00 TO STA 84+00
CITY OF PLACERVILLE CA

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO. 2332.004
SHEET NO. 6 OF 7

G:\Projects\V2018\P18112 Placerville Dr Bike and Ped\Dwg\BS\2332.004 - (E)SD_System exhibit - WSM.dwg Sep 02, 2025 - 10:09am, PYM

0 20' 40' 80'

SCALE IN FEET

LEGEND

(SCALED FOR CLARITY)

- Off-site Watershed
- On-site Watershed
- Flow Direction

NOTES

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MATCHLINE STA. 84+00

COLD SPRINGS ROAD

WS: DI30
0.25 ac

WS: DI30
0.03 ac

DI30

(E)15" RCP

WS: DI31B
0.72 ac

DI31

WS: DI31A
4.63 ac

WS: DI31
0.04 ac

SD

WS: DI31A
0.46 ac

WS: SDCB88
0.30 ac

SDCB88

WS: DI34
0.56 ac

(E)12" PP

SDCB88B

WS: SDCB88B
1.35 ac

SDMH600

HANGTOWN CREEK

WS: SDCB88B2
0.23 ac

(E)12" PP

SDCB88B2

WS: SDCB88B
1.35 ac

SDADP88

WS: SDCB88B2
0.14 ac

621

640

600

84 85 86 87 88 89 90 91 92 93 94

PLACERVILLE DRIVE

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NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 84+00 TO STA 92+00 // GREEN VALLEY RD
CITY OF PLACERVILLE CA

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 7 OF 7



NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

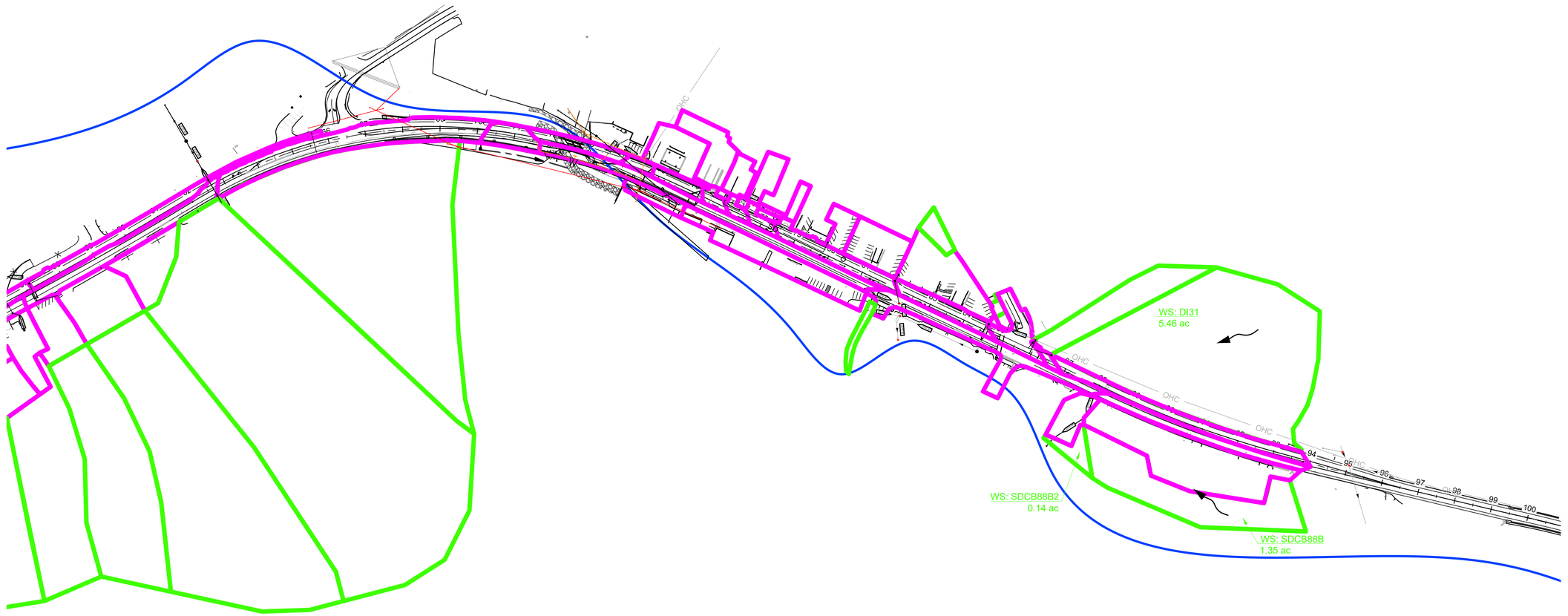
HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94597
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 84+00 TO STA 92+00 // GREEN VALLEY RD
CITY OF PLACERVILLE CA

DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 7 OF 7

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NO.	REVISION DESCRIPTION	CHECKED BY	DATE

EXHIBIT

DRAWING SCALE
HOR. SCALE: 1" = 40'
VERT. SCALE: N.T.S.

HDR INC.
3003 Oak Road, Suite 500
Walnut Creek, CA 94596
(925) 465-2700

EXHIBIT FOR:
PLACERVILLE DRIVE BICYCLE AND PEDESTRIAN FACILITIES
EXISTING STORM DRAIN SYSTEM
STA 84+00 TO STA 92+00 // GREEN VALLEY RD
CITY OF PLACERVILLE CA

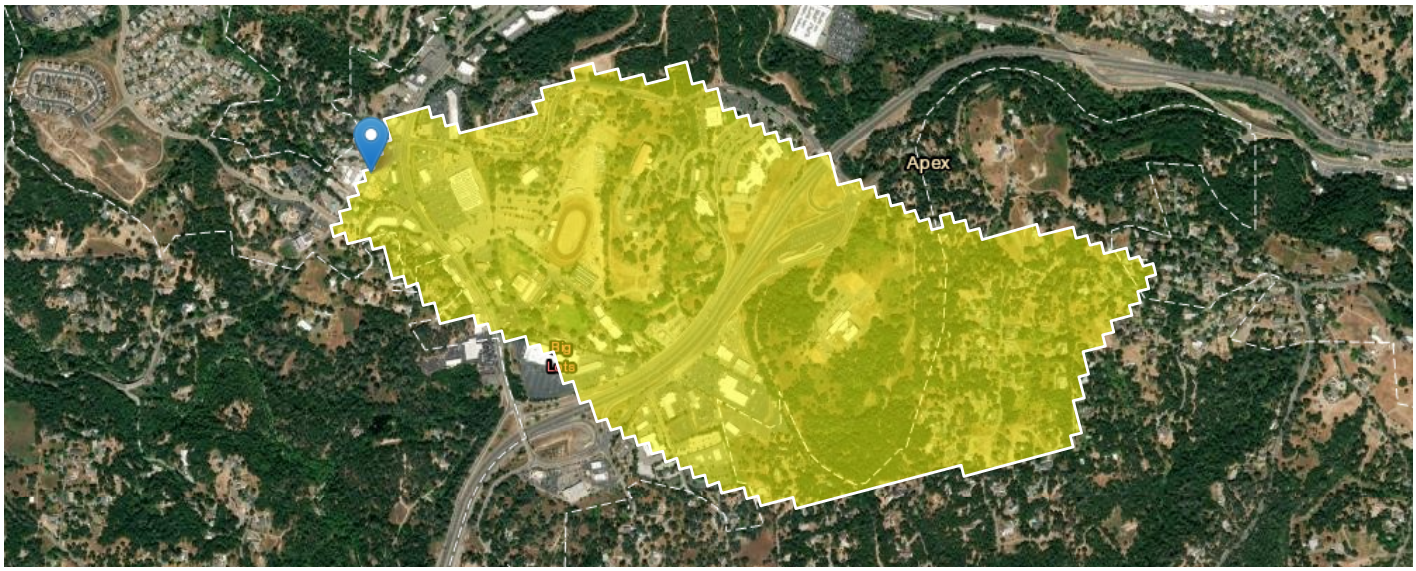
DRAWING INFO
DATE: 01/20/2025
DRAFTER: Grant Darling
DESIGNER: Alvin Yim
REVIEWER: Chris Sewell

PROJECT NO.
2332.004
SHEET NO. 7 OF 7

G:\Projects\Y2018\P18112 Placerville Dr Bike and Ped\Dwg\BS\2332.004 - (E)SD_System exhibit - WSM.dwg Sep 02, 2025 - 10:16am, PYM

StreamStats Report

Region ID: CA
Workspace ID: CA20241112164707231000
Clicked Point (Latitude, Longitude): 38.72762, -120.83819
Time: 2024-11-12 08:47:33 -0800



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.6	square miles
ELEV	Mean Basin Elevation	1853	feet
PRECIP	Mean Annual Precipitation	37.9	inches

Peak-Flow Statistics

Peak-Flow Statistics Parameters [2012 5113 Region 3 Sierra Nevada]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.6	square miles	0.07	2000
ELEV	Mean Basin Elevation	1853	feet	90	11000
PRECIP	Mean Annual Precipitation	37.9	inches	15	100

Peak-Flow Statistics Flow Report [2012 5113 Region 3 Sierra Nevada]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	21	ft^3/s	6.94	63.6	74.4
20-percent AEP flood	49.8	ft^3/s	21.1	117	54.4
10-percent AEP flood	75.8	ft^3/s	33.6	171	51.5
4-percent AEP flood	113	ft^3/s	49.9	256	52.3

Statistic	Value	Unit	PIL	PIU	ASEp
2-percent AEP flood	146	ft^3/s	62.2	343	54.6
1-percent AEP flood	182	ft^3/s	74.2	446	58
0.5-percent AEP flood	220	ft^3/s	85.5	566	61.5
0.2-percent AEP flood	276	ft^3/s	99.3	767	67.3

Peak-Flow Statistics Citations

Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles,2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113, 38 p., 1 pl. (http://pubs.usgs.gov/sir/2012/5113/)

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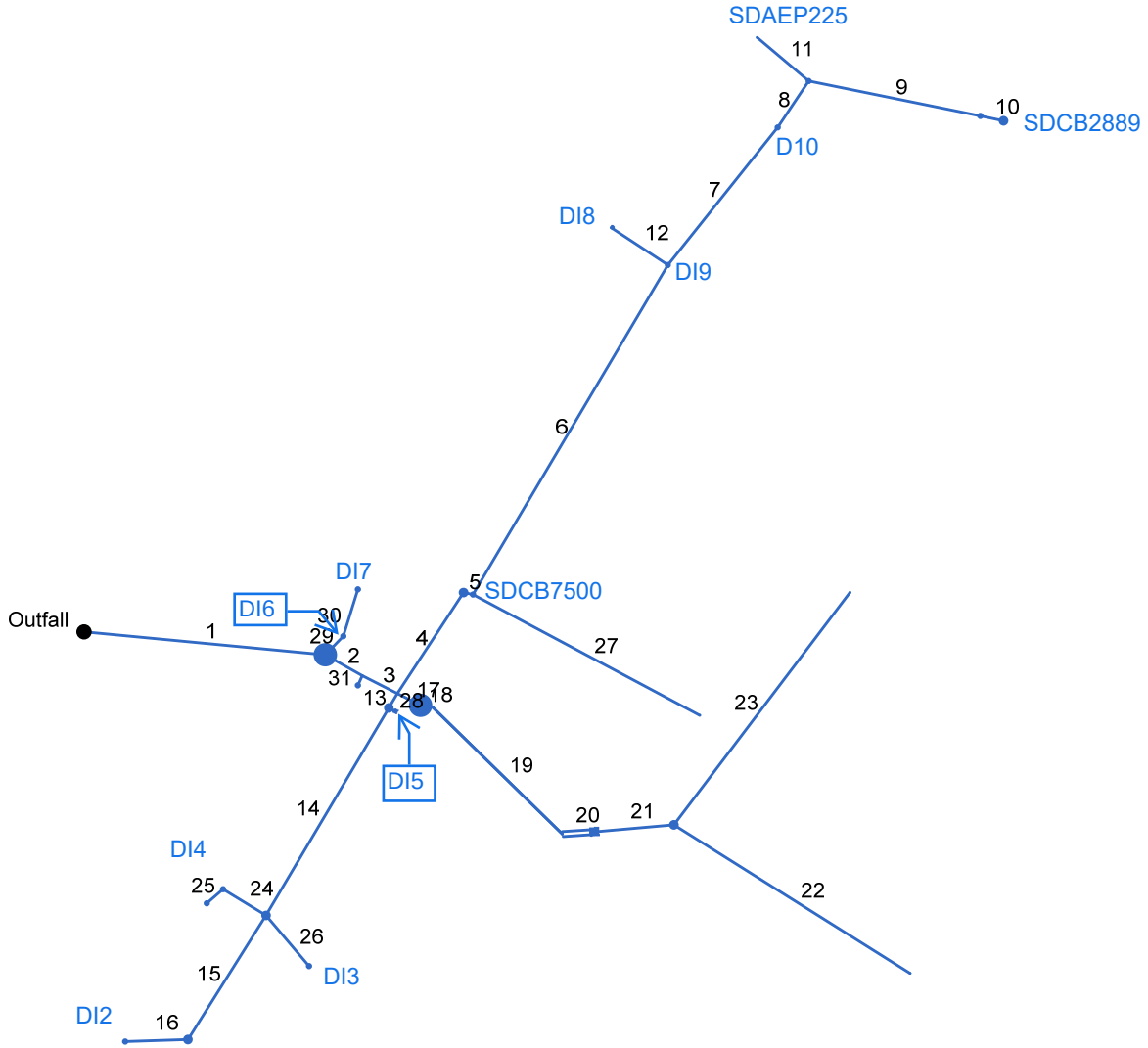
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Application Version: 4.24.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Appendix D Hydraulic Grade line Calculations (Proposed)

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2025-0818 Test GVR.stm	Number of lines: 31	Date: 8/20/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	141.082	5.475	MH	0.00	0.00	0.00	0.0	1681.76	1.29	1683.58	54	Cir	0.012	0.82	1690.05	(E)SD Pipe - (11)
2	1	24.822	24.114	None	0.00	0.00	0.00	0.0	1684.88	0.81	1685.08	36X60	Box	0.013	1.00	1688.78	SD Pipe - (41) (2)
3	2	22.704	-2.652	None	0.00	0.00	0.00	0.0	1685.08	0.93	1685.29	36X60	Box	0.013	1.00	1688.99	SD Pipe - (41)
4	3	70.630	-83.568	MH	0.00	0.00	0.00	0.0	1685.51	1.53	1686.59	30	Cir	0.012	0.95	1690.43	SD Pipe - (32)
5	4	5.175	69.178	MH	0.99	0.00	0.00	0.0	1686.69	1.93	1686.79	24	Cir	0.012	0.96	1690.19	SD Pipe - (44)
6	5	223.913	-71.950	MH	0.33	0.00	0.00	0.0	1686.79	1.86	1690.96	18	Cir	0.013	1.00	1699.09	(E)SD Pipe - (4)
7	6	102.829	7.855	MH	1.92	0.00	0.00	0.0	1692.59	6.72	1699.50	18	Cir	0.012	0.15	1704.92	SD Pipe - (33)
8	7	32.315	-5.174	MH	0.00	0.00	0.00	0.0	1699.60	2.01	1700.25	18	Cir	0.012	0.99	1708.45	SD Pipe - (34)
9	8	102.234	68.174	MH	0.00	0.00	0.00	0.0	1702.81	1.90	1704.75	18	Cir	0.013	0.15	1706.90	(E)SD Pipe - (9)
10	9	13.929	0.591	MH	0.56	0.00	0.00	0.0	1704.58	1.94	1704.85	15	Cir	0.013	1.00	0.00	Inserted Line
11	8	39.326	-82.728	None	1.31	0.00	0.00	0.0	1700.60	4.58	1702.40	18	Cir	0.013	1.00	0.00	(E)SD Pipe - (8)
12	6	39.630	-87.158	MH	0.63	0.00	0.00	0.0	1691.01	4.67	1692.86	18	Cir	0.013	1.00	1698.96	(E)SD Pipe - (10)
13	3	9.903	92.668	MH	0.00	0.00	0.00	0.0	1686.01	0.81	1686.09	18	Cir	0.012	1.00	1690.03	SD Pipe - (40)
14	13	140.871	0.900	MH	0.00	0.00	0.00	0.0	1686.06	0.67	1687.01	18	Cir	0.012	1.00	1691.74	SD Pipe - (27)(0)
15	14	85.736	1.676	MH	0.00	0.00	0.00	0.0	1687.23	4.50	1691.09	12	Cir	0.012	0.86	1695.68	SD Pipe - (46)
16	15	36.373	55.969	MH	1.31	0.00	0.00	0.0	1691.09	1.98	1691.81	12	Cir	0.012	1.00	1696.01	SD Pipe - (45)
17	3	15.500	0.000	MH	0.00	0.00	0.00	0.0	1685.29	0.71	1685.40	36X60	Box	0.013	0.36	1690.57	SD Pipe - (41) (1)
18	17	6.824	-17.962	None	0.00	0.00	0.00	0.0	1684.65	11.72	1685.45	36	Cir(2b)	0.012	0.63	1688.60	(E)SD Pipe - (14)
19	18	106.139	35.436	None	0.00	0.00	0.00	0.0	1685.45	1.71	1687.26	36	Cir(2b)	0.012	0.79	1690.42	(E)SD Pipe - (14)
20	19	18.531	-48.280	MH	0.00	0.00	0.00	0.0	1687.26	1.08	1687.46	36	Cir(2b)	0.012	0.15	1693.77	(E)SD Pipe - (14)
21	20	46.384	-1.259	MH	0.00	0.00	0.00	0.0	1687.12	3.30	1688.65	48	Cir	0.013	0.78	1694.80	(E)SD Pipe - (76)
22	21	162.903	37.351	None	75.80	0.00	0.00	0.0	1688.70	2.83	1693.31	54	Cir	0.012	1.00	0.00	(E)SD Pipe - (77)
23	21	170.295	-47.794	None	10.15	0.00	0.00	0.0	1689.87	5.04	1698.45	18	Cir	0.012	1.00	0.00	(E)SD Pipe - (78)

Project File: 2025-0818 Test GVR.stm | Number of lines: 31 | Date: 9/2/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
24	14	29.321	91.197	MH	0.00	0.00	0.00	0.0	1687.11	2.18	1687.75	12	Cir	0.012	0.96	1691.13	SD Pipe - (25)
25	24	12.646	-72.177	MH	0.43	0.00	0.00	0.0	1687.85	1.03	1687.98	12	Cir	0.012	1.00	1691.36	SD Pipe - (24)
26	14	38.678	-70.777	MH	0.10	0.00	0.00	0.0	1687.24	2.38	1688.16	12	Cir	0.012	1.00	1692.16	SD Pipe - (26)
27	5	150.000	15.539	None	1.05	0.00	0.00	0.0	1686.94	1.00	1688.44	12	Cir	0.013	1.00	0.00	(E)SD Pipe - (64)
28	13	4.432	-92.381	MH	1.07	0.00	0.00	0.0	1686.56	2.03	1686.65	12	Cir	0.012	1.00	1690.02	SD Pipe - (57)
29	1	15.167	-51.339	MH	0.13	0.00	0.00	0.0	1685.27	3.16	1685.75	12	Cir	0.012	0.51	1689.59	SD Pipe - (31)
30	29	28.637	-27.241	MH	1.01	0.00	0.00	0.0	1685.85	1.64	1686.32	12	Cir	0.012	1.00	1689.62	SD Pipe - (30)
31	2	6.237	87.735	MH	0.56	0.00	0.00	0.0	1685.08	-0.48	1685.05	12	Cir	0.012	1.00	1686.60	SD Pipe - (58)

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	(E)SD Pipe - (11)	97.35	54	Cir	141.082	1681.76	1683.58	1.290	1683.75	1686.48	n/a	1686.48	End	Manhole
2	SD Pipe - (41) (2)	96.21	36x60	Box	24.822	1684.88	1685.08	0.806	1686.70	1687.34	1.13	1687.34	1	None
3	SD Pipe - (41)	95.65	36x60	Box	22.704	1685.08	1685.29	0.925	1687.30	1687.51	n/a	1687.51	2	None
4	SD Pipe - (32)	6.79	30	Cir	70.630	1685.51	1686.59	1.529	1687.51	1687.37	n/a	1687.37	3	Manhole
5	SD Pipe - (44)	6.79	24	Cir	5.175	1686.69	1686.79	1.934	1687.37	1687.62	n/a	1687.62	4	Manhole
6	(E)SD Pipe - (4)	4.75	18	Cir	223.913	1686.79	1690.96	1.862	1687.62	1691.70	n/a	1691.70	5	Manhole
7	SD Pipe - (33)	3.79	18	Cir	102.829	1692.59	1699.50	6.720	1692.92	1700.16	n/a	1700.16	6	Manhole
8	SD Pipe - (34)	1.87	18	Cir	32.315	1699.60	1700.25	2.012	1700.16	1700.72	n/a	1700.72	7	Manhole
9	(E)SD Pipe - (9)	0.56	18	Cir	102.234	1702.81	1704.75	1.898	1703.01	1705.03	n/a	1705.03	8	Manhole
10	Inserted Line	0.56	15	Cir	13.929	1704.58	1704.85	1.939	1705.03	1705.14	n/a	1705.14	9	Manhole
11	(E)SD Pipe - (8)	1.31	18	Cir	39.326	1700.60	1702.40	4.577	1700.82	1702.77	n/a	1702.77	8	None
12	(E)SD Pipe - (10)	0.63	18	Cir	39.630	1691.01	1692.86	4.668	1691.70	1693.12	n/a	1693.12	6	Manhole
13	SD Pipe - (40)	2.91	18	Cir	9.903	1686.01	1686.09	0.807	1687.51	1686.67	n/a	1686.67	3	Manhole
14	SD Pipe - (27)(0)	1.84	18	Cir	140.871	1686.06	1687.01	0.674	1686.67	1687.47	n/a	1687.47	13	Manhole
15	SD Pipe - (46)	1.31	12	Cir	85.736	1687.23	1691.09	4.502	1687.47	1691.51	n/a	1691.51	14	Manhole
16	SD Pipe - (45)	1.31	12	Cir	36.373	1691.09	1691.81	1.980	1691.51	1692.23	n/a	1692.23	15	Manhole
17	SD Pipe - (41) (1)	85.95	36x60	Box	15.500	1685.29	1685.40	0.710	1687.51	1687.49	n/a	1687.49	3	Manhole
18	(E)SD Pipe - (14) (1)	85.95	36	Cir(2b)	6.824	1684.65	1685.45	11.722	1687.49	1687.24	n/a	1687.24	17	None
19	(E)SD Pipe - (14) (2)	85.95	36	Cir(2b)	106.139	1685.45	1687.26	1.705	1687.24	1689.05	n/a	1689.05	18	None
20	(E)SD Pipe - (14)	85.95	36	Cir(2b)	18.531	1687.26	1687.46	1.079	1689.05	1689.25	n/a	1689.25	19	Manhole
21	(E)SD Pipe - (76)	85.95	48	Cir	46.384	1687.12	1688.65	3.299	1689.25	1691.46	n/a	1691.46	20	Manhole
22	(E)SD Pipe - (77)	75.80	54	Cir	162.903	1688.70	1693.31	2.830	1691.46	1695.85	n/a	1695.85	21	None
23	(E)SD Pipe - (78)	10.15	18	Cir	170.295	1689.87	1698.45	5.038	1691.46	1699.68	n/a	1699.68	21	None
24	SD Pipe - (25)	0.43	12	Cir	29.321	1687.11	1687.75	2.183	1687.47	1688.02	n/a	1688.02	14	Manhole

Project File: 2025-0818 Test GVR.stm | Number of lines: 31 | Run Date: 9/2/2025

NOTES: Known Qs only

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
25	SD Pipe - (24)	0.43	12	Cir	12.646	1687.85	1687.98	1.028	1688.07	1688.25	n/a	1688.25	24	Manhole
26	SD Pipe - (26)	0.10	12	Cir	38.678	1687.24	1688.16	2.379	1687.47	1688.27	n/a	1688.27	14	Manhole
27	(E)SD Pipe - (64)	1.05	12	Cir	150.000	1686.94	1688.44	1.000	1687.62	1688.87	n/a	1688.87	5	None
28	SD Pipe - (57)	1.07	12	Cir	4.432	1686.56	1686.65	2.030	1686.82	1687.03	n/a	1687.03	13	Manhole
29	SD Pipe - (31)	1.14	12	Cir	15.167	1685.27	1685.75	3.165	1686.44	1686.43	n/a	1686.45	1	Manhole
30	SD Pipe - (30)	1.01	12	Cir	28.637	1685.85	1686.32	1.641	1686.45	1686.69	n/a	1686.69	29	Manhole
31	SD Pipe - (58)	0.56	12	Cir	6.237	1685.08	1685.05	-0.480	1687.30*	1687.31*	n/a	1687.31	2	Manhole

Project File: 2025-0818 Test GVR.stm | Number of lines: 31 | Run Date: 9/2/2025

NOTES: Known Qs only ; *Surcharged (HGL above crown).

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	54	97.35	1681.76	1683.75	1.99	6.77	14.38	1.26	1685.01	0.000	141.082	1683.58	1686.48	2.89**	10.81	9.00	1.26	1687.74	0.000	0.000	n/a	0.82	n/a
2	36 60 B	96.21	1684.88	1686.70	1.82*	9.10	10.57	1.13	1687.83	0.000	24.822	1685.08	1687.34	2.26**	11.28	8.53	1.13	1688.47	0.000	0.000	n/a	1.00	1.13
3	36 60 B	95.65	1685.08	1687.30	0.00	0.00	8.44	0.00	1687.30	0.000	22.704	1685.29	1687.51	0.00**	0.00	8.46	0.00	1687.51	0.000	0.000	0.000	1.00	n/a
4	30	6.79	1685.51	1687.51	0.00	0.00	1.32	0.00	1687.51	0.000	70.630	1686.59	1687.37	0.00**	0.00	4.27	0.00	1687.37	0.000	0.000	0.000	0.95	n/a
5	24	6.79	1686.69	1687.37	0.00	0.00	5.92	0.00	1687.37	0.000	5.175	1686.79	1687.62	0.00**	0.00	4.50	0.00	1687.62	0.000	0.000	0.000	0.96	n/a
6	18	4.75	1686.79	1687.62	0.00	0.00	3.73	0.00	1687.62	0.000	223.913	1690.96	1691.70	0.00**	0.00	4.33	0.00	1691.70	0.000	0.000	0.000	1.00	n/a
7	18	3.79	1692.59	1692.92	0.00	0.00	10.75	0.00	1692.92	0.000	102.829	1699.50	1700.16	0.00**	0.00	4.03	0.00	1700.16	0.000	0.000	0.000	0.15	n/a
8	18	1.87	1699.60	1700.16	0.00	0.00	2.58	0.00	1700.16	0.000	32.315	1700.25	1700.72	0.00**	0.00	3.31	0.00	1700.72	0.000	0.000	0.000	0.99	n/a
9	18	0.56	1702.81	1703.01	0.00	0.00	3.95	0.00	1703.01	0.000	102.234	1704.75	1705.03	0.00**	0.00	2.49	0.00	1705.03	0.000	0.000	0.000	0.15	n/a
10	15	0.56	1704.58	1705.03	0.00	0.00	1.42	0.00	1705.03	0.000	13.929	1704.85	1705.14	0.00**	0.00	2.58	0.00	1705.14	0.000	0.000	0.000	1.00	n/a
11	18	1.31	1700.60	1700.82	0.00	0.00	6.39	0.00	1700.82	0.000	39.326	1702.40	1702.77	0.00**	0.00	2.92	0.00	1702.77	0.000	0.000	0.000	1.00	n/a
12	18	0.63	1691.01	1691.70	0.00	0.00	0.60	0.00	1691.70	0.000	39.630	1692.86	1693.12	0.00**	0.00	2.39	0.00	1693.12	0.000	0.000	0.000	1.00	n/a
13	18	2.91	1686.01	1687.51	0.00	0.00	1.31	0.00	1687.51	0.000	9.903	1686.09	1686.67	0.00**	0.00	3.72	0.00	1686.67	0.000	0.000	0.000	1.00	n/a
14	18	1.84	1686.06	1686.67	0.00	0.00	2.25	0.00	1686.67	0.000	140.871	1687.01	1687.47	0.00**	0.00	3.27	0.00	1687.47	0.000	0.000	0.000	1.00	n/a
15	12	1.31	1687.23	1687.47	0.00	0.00	6.93	0.00	1687.47	0.000	85.736	1691.09	1691.51	0.00**	0.00	3.20	0.00	1691.51	0.000	0.000	0.000	0.86	n/a
16	12	1.31	1691.09	1691.51	0.00	0.00	3.20	0.00	1691.51	0.000	36.373	1691.81	1692.23	0.00**	0.00	3.20	0.00	1692.23	0.000	0.000	0.000	1.00	n/a
17	36 60 B	85.95	1685.29	1687.51	0.00	0.00	7.75	0.00	1687.51	0.000	15.500	1685.40	1687.49	0.00**	0.00	8.21	0.00	1687.49	0.000	0.000	0.000	0.36	n/a
18	36(2b)	85.95	1684.65	1687.49	0.00	0.00	6.20	0.00	1687.49	0.000	6.824	1685.45	1687.24	0.00**	0.00	9.80	0.00	1687.24	0.000	0.000	0.000	0.63	n/a
19	36(2b)	85.95	1685.45	1687.24	0.00	0.00	9.80	0.00	1687.24	0.000	106.139	1687.26	1689.05	0.00**	0.00	9.80	0.00	1689.05	0.000	0.000	0.000	0.79	n/a
20	36(2b)	85.95	1687.26	1689.05	0.00	0.00	9.80	0.00	1689.05	0.000	18.531	1687.46	1689.25	0.00**	0.00	9.80	0.00	1689.25	0.000	0.000	0.000	0.15	n/a
21	48	85.95	1687.12	1689.25	0.00	0.00	12.67	0.00	1689.25	0.000	46.384	1688.65	1691.46	0.00**	0.00	9.12	0.00	1691.46	0.000	0.000	0.000	0.78	n/a

Project File: 2025-0818 Test GVR.stm | Number of lines: 31 | Run Date: 9/2/2025

Notes: * depth assumed; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

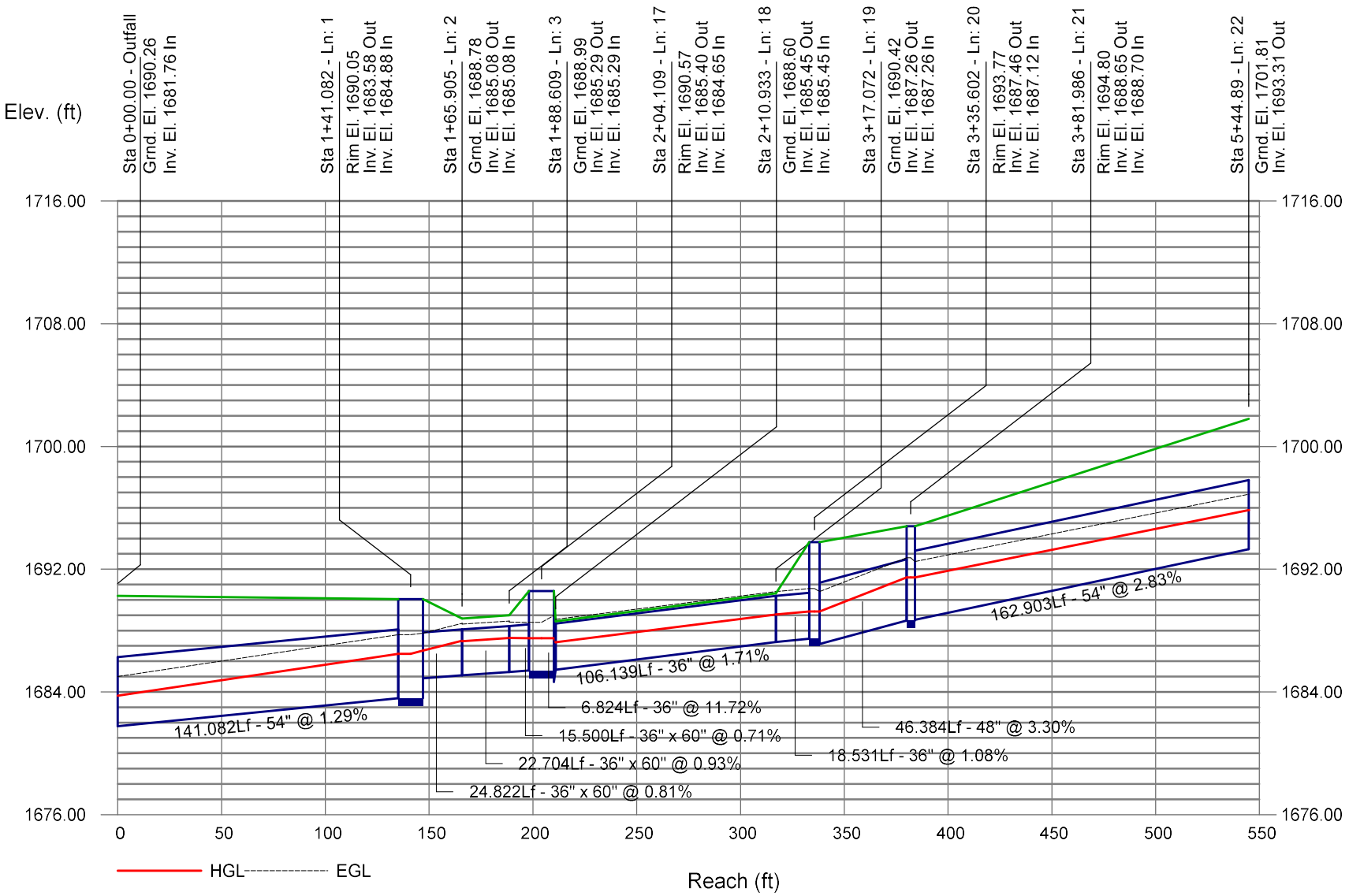
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
22	54	75.80	1688.70	1691.46	0.00	0.00	7.42	0.00	1691.46	0.000	162.903	1693.31	1695.85	0.00**	0.00	8.19	0.00	1695.85	0.000	0.000	0.000	1.00	n/a
23	18	10.15	1689.87	1691.46	0.00	0.00	5.74	0.00	1691.46	0.000	170.295	1698.45	1699.68	0.00**	0.00	6.56	0.00	1699.68	0.000	0.000	0.000	1.00	n/a
24	12	0.43	1687.11	1687.47	0.00	0.00	1.69	0.00	1687.47	0.000	29.321	1687.75	1688.02	0.00**	0.00	2.50	0.00	1688.02	0.000	0.000	0.000	0.96	n/a
25	12	0.43	1687.85	1688.07	0.00	0.00	3.27	0.00	1688.07	0.000	12.646	1687.98	1688.25	0.00**	0.00	2.50	0.00	1688.25	0.000	0.000	0.000	1.00	n/a
26	12	0.10	1687.24	1687.47	0.00	0.00	0.52	0.00	1687.47	0.000	38.678	1688.16	1688.27	0.00**	0.00	1.54	0.00	1688.27	0.000	0.000	0.000	1.00	n/a
27	12	1.05	1686.94	1687.62	0.00	0.00	1.84	0.00	1687.62	0.000	150.000	1688.44	1688.87	0.00**	0.00	3.25	0.00	1688.87	0.000	0.000	0.000	1.00	n/a
28	12	1.07	1686.56	1686.82	0.00	0.00	5.02	0.00	1686.82	0.000	4.432	1686.65	1687.03	0.00**	0.00	3.01	0.00	1687.03	0.000	0.000	0.000	1.00	n/a
29	12	1.14	1685.27	1686.44	0.00	0.00	1.11	0.00	1686.44	0.000	15.167	1685.75	1686.43	0.00**	0.00	1.52	0.00	1686.43	0.000	0.000	0.000	0.51	n/a
30	12	1.01	1685.85	1686.45	0.00	0.00	1.56	0.00	1686.45	0.000	28.637	1686.32	1686.69	0.00**	0.00	2.96	0.00	1686.69	0.000	0.000	0.000	1.00	n/a
31	12	0.56	1685.08	1687.30	0.00	0.00	0.42	0.00	1687.30	0.000	6.237	1685.05	1687.31	0.00**	0.00	0.42	0.00	1687.31	0.000	0.000	0.000	1.00	n/a

Project File: 2025-0818 Test GVR.stm | Number of lines: 31 | Run Date: 9/2/2025

Notes: * depth assumed; ** Critical depth. ; c = cir e = ellip b = box

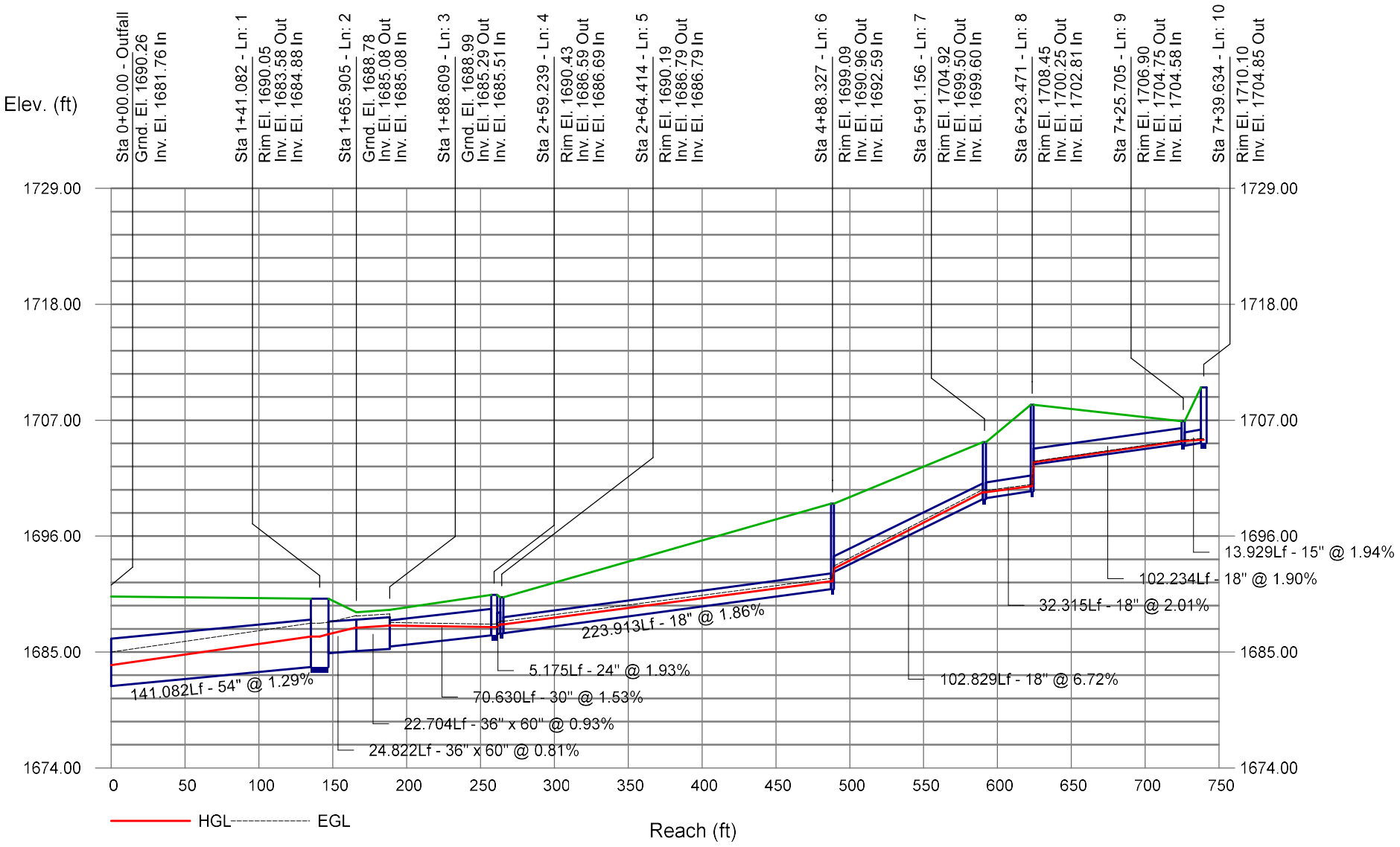
Storm Sewer Profile

Proj. file: 2025-0818 Test GVR.stm



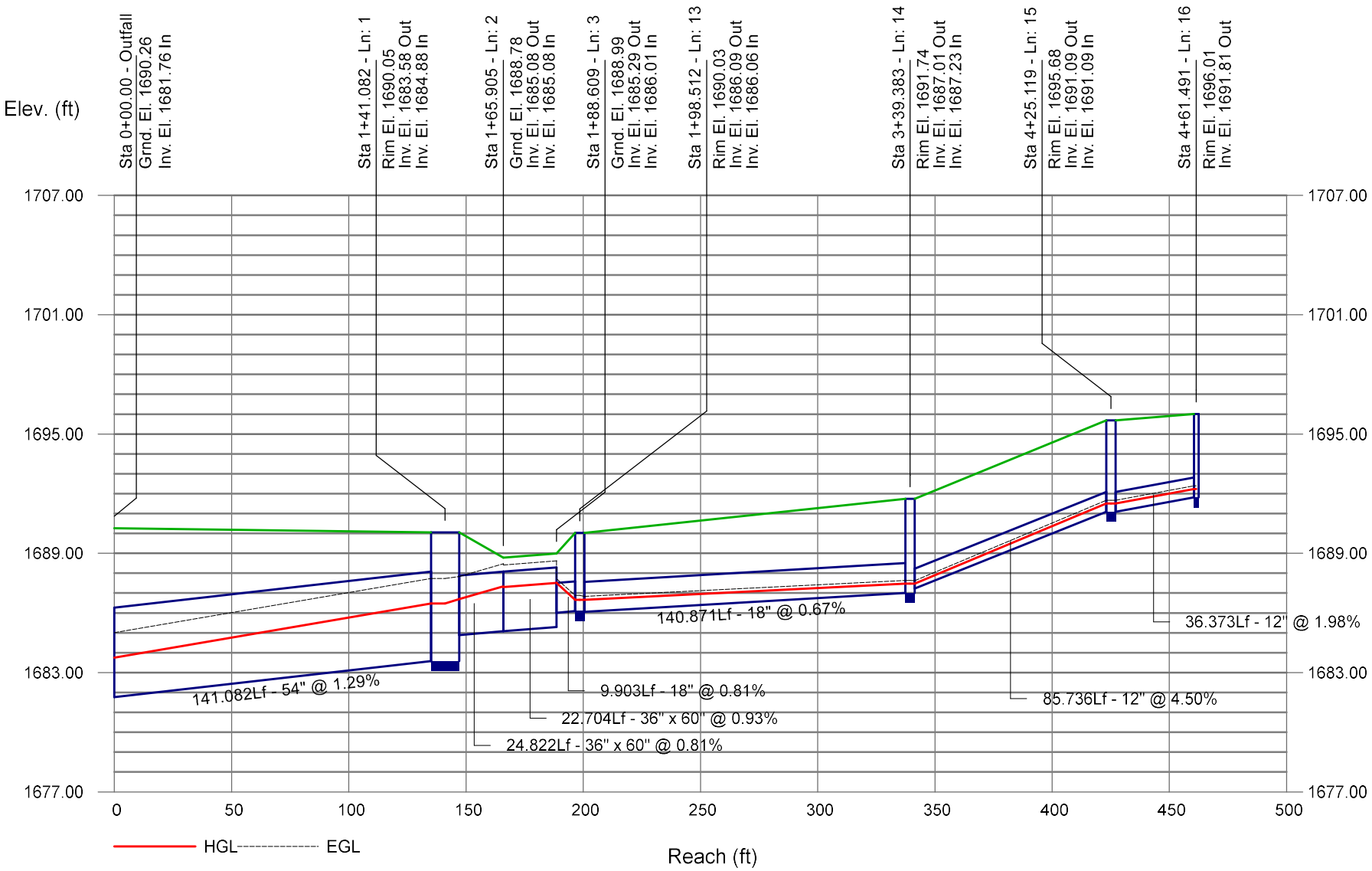
Storm Sewer Profile

Proj. file: 2025-0818 Test GVR.stm

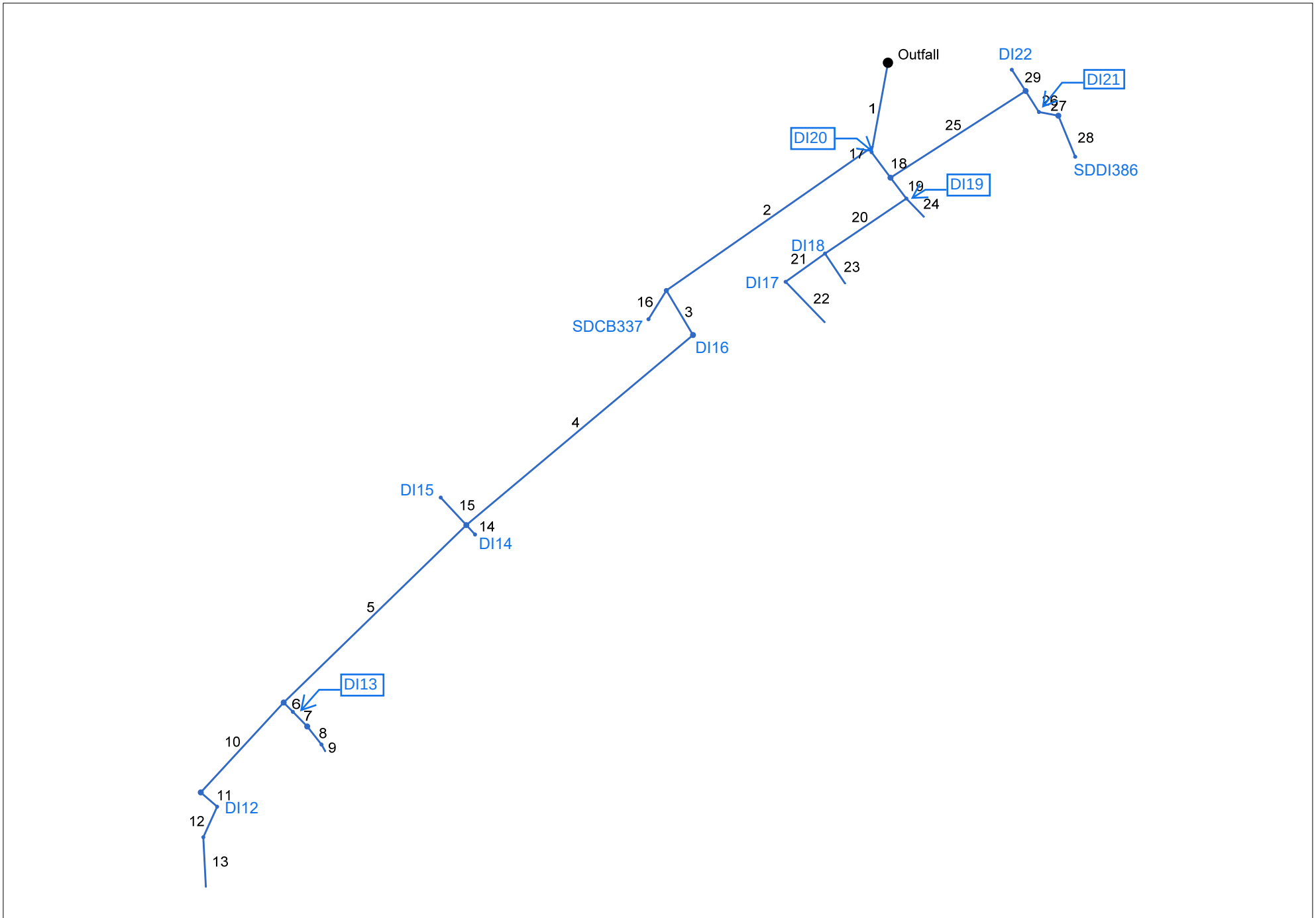


Storm Sewer Profile

Proj. file: 2025-0818 Test GVR.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 45 to 56.stm	Number of lines: 29	Date: 1/22/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	83.664	100.307	None	0.00	0.00	0.00	0.0	1648.65	7.39	1654.83	24	Cir	0.012	0.75	1656.94	(E)SD Pipe - (31)
2	1	246.259	44.681	MH	0.00	0.00	0.00	0.0	1654.83	2.03	1659.84	18	Cir	0.012	1.00	1668.52	Pipe - (13)
3	2	50.845	-85.589	MH	0.00	6.05	0.62	25.0	1660.04	4.82	1662.49	18	Cir	0.012	0.99	1678.27	(E)SD Pipe - (2) (
4	3	289.644	80.510	MH	0.00	0.00	0.00	0.0	1662.59	5.14	1677.48	18	Cir	0.012	1.00	1682.58	SD Pipe - (14)
5	4	249.439	-4.224	MH	0.00	0.00	0.00	0.0	1677.58	4.28	1688.27	18	Cir	0.012	1.00	1693.12	SD Pipe - (17)
6	5	13.004	-90.527	MH	0.00	0.00	0.00	0.0	1689.11	1.00	1689.24	12	Cir	0.012	0.15	1692.74	SD Pipe - (19)
7	6	20.273	0.000	MH	0.00	0.00	0.00	0.0	1689.24	2.00	1689.64	12	Cir	0.012	0.16	1698.44	SD Pipe - (35)
8	7	22.293	7.479	MH	0.00	0.00	0.00	0.0	1694.60	6.41	1696.03	12	Cir	0.012	0.18	1697.55	(E)SD Pipe - (23)
9	8	7.256	8.687	None	0.00	2.39	0.55	15.0	1696.13	0.96	1696.20	12	Cir	0.013	1.00	0.00	(E)SD Pipe - (66)
10	5	119.532	-3.260	MH	0.00	0.00	0.00	0.0	1688.37	4.00	1693.15	18	Cir	0.012	1.00	1698.02	SD Pipe - (18)
11	10	21.229	-91.030	MH	0.00	0.00	0.00	0.0	1693.25	2.00	1693.67	12	Cir	0.012	0.96	1697.81	SD Pipe - (20)
12	11	32.907	72.981	MH	0.00	0.00	0.00	0.0	1693.77	5.96	1695.73	12	Cir	0.012	0.52	1698.83	Pipe - (5)
13	12	48.590	-27.494	None	0.00	1.47	0.59	15.0	1695.83	2.00	1696.80	12	Cir	0.013	1.00	0.00	(E)SD Pipe - (18)
14	4	12.613	-92.626	MH	0.00	1.18	0.64	15.0	1677.96	1.98	1678.21	12	Cir	0.012	1.00	1682.21	SD Pipe - (15)
15	4	36.625	87.374	MH	0.00	0.02	0.95	5.0	1677.58	2.02	1678.32	12	Cir	0.012	1.00	1682.32	SD Pipe - (16)
16	2	33.250	-23.221	MH	0.00	0.20	0.95	5.0	1663.97	10.62	1667.50	12	Cir	0.013	1.00	1670.47	(E)SD Pipe - (24)
17	1	5.606	0.000	MH	0.00	0.00	0.00	0.0	1654.83	7.14	1655.23	24	Cir	0.012	0.77	1665.74	(E)SD Pipe - (31)
18	17	30.991	-46.743	MH	0.00	0.00	0.00	0.0	1655.30	5.10	1656.88	18	Cir	0.013	1.00	1665.17	Pipe - (4)
19	18	25.589	-0.014	MH	0.00	0.00	0.00	0.0	1656.93	5.10	1658.23	18	Cir	0.013	1.00	1664.32	Pipe - (3)
20	19	96.043	92.252	MH	0.00	1.40	0.55	5.0	1659.13	2.79	1661.81	15	Cir	0.013	1.00	1665.21	(E)SD Pipe - (27)
21	20	47.504	-1.527	MH	0.00	0.00	0.00	0.0	1661.81	1.39	1662.47	12	Cir	0.013	1.00	1665.97	(E)SD Pipe - (26)
22	21	54.879	-98.137	None	0.00	0.91	0.65	5.0	1663.17	2.00	1664.27	15	Cir	0.013	1.00	0.00	(E)SD Pipe - (32)
23	20	35.201	-89.763	None	0.00	0.91	0.95	5.0	1662.36	1.99	1663.06	12	Cir	0.012	1.00	0.00	(E)SD Pipe - (33)

Project File: STA 45 to 56.stm

Number of lines: 29

Date: 1/22/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
24	19	24.739	-7.824	None	0.00	0.91	0.95	5.0	1660.93	2.02	1661.43	15	Cir	0.013	1.00	0.00	(E)SD Pipe - (34)
25	18	156.839	-86.422	MH	0.00	0.00	0.00	0.0	1656.98	1.00	1658.55	18	Cir	0.012	1.00	1663.16	SD Pipe - (36)
26	25	24.528	90.459	MH	0.00	0.00	0.00	0.0	1658.65	2.00	1659.14	12	Cir	0.012	0.77	1664.34	SD Pipe - (10)
27	26	19.321	-46.780	MH	0.00	0.00	0.00	0.0	1659.24	2.00	1659.63	12	Cir	0.012	0.86	1663.27	Pipe - (6)
28	27	43.691	56.538	MH	0.00	2.41	0.55	15.0	1659.73	11.58	1664.79	12	Cir	0.013	1.00	1666.04	Pipe - (7)
29	25	24.722	-89.541	MH	0.00	0.20	0.95	5.0	1658.65	1.98	1659.14	12	Cir	0.012	1.00	1662.34	SD Pipe - (12)

Project File: STA 45 to 56.stm | Number of lines: 29 | Date: 1/22/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	(E)SD Pipe - (31) (1)	17.64	24	Cir	83.664	1648.65	1654.83	7.387	1649.35	1656.34	n/a	1656.34	End	None
2	Pipe - (13)	10.71	18	Cir	246.259	1654.83	1659.84	2.034	1656.34	1661.10	n/a	1661.10 j	1	Manhole
3	(E)SD Pipe - (2) (2)	10.44	18	Cir	50.845	1660.04	1662.49	4.818	1661.10	1663.73	n/a	1663.73	2	Manhole
4	SD Pipe - (14)	5.59	18	Cir	289.644	1662.59	1677.48	5.143	1663.73	1678.39	n/a	1678.39 j	3	Manhole
5	SD Pipe - (17)	4.24	18	Cir	249.439	1677.58	1688.27	4.284	1678.39	1689.06	n/a	1689.06 j	4	Manhole
6	SD Pipe - (19)	2.64	12	Cir	13.004	1689.11	1689.24	1.000	1689.72	1689.93	n/a	1689.93	5	Manhole
7	SD Pipe - (35)	2.64	12	Cir	20.273	1689.24	1689.64	2.000	1689.93	1690.34	n/a	1690.34	6	Manhole
8	(E)SD Pipe - (23)	2.65	12	Cir	22.293	1694.60	1696.03	6.410	1694.96	1696.73	0.06	1696.73	7	Manhole
9	(E)SD Pipe - (66)	2.65	12	Cir	7.256	1696.13	1696.20	0.964	1696.78	1696.90	0.32	1696.90	8	None
10	SD Pipe - (18)	1.73	18	Cir	119.532	1688.37	1693.15	4.000	1689.06	1693.64	n/a	1693.64 j	5	Manhole
11	SD Pipe - (20)	1.73	12	Cir	21.229	1693.25	1693.67	2.000	1693.64	1694.23	0.22	1694.23	10	Manhole
12	Pipe - (5)	1.74	12	Cir	32.907	1693.77	1695.73	5.956	1694.23	1696.29	n/a	1696.29	11	Manhole
13	(E)SD Pipe - (18)	1.75	12	Cir	48.590	1695.83	1696.80	1.996	1696.29	1697.36	n/a	1697.36	12	None
14	SD Pipe - (15)	1.52	12	Cir	12.613	1677.96	1678.21	1.982	1678.39	1678.73	0.21	1678.73	4	Manhole
15	SD Pipe - (16)	0.07	12	Cir	36.625	1677.58	1678.32	2.020	1678.39	1678.43	n/a	1678.43 j	4	Manhole
16	(E)SD Pipe - (24)	0.66	12	Cir	33.250	1663.97	1667.50	10.617	1664.13	1667.84	n/a	1667.84	2	Manhole
17	(E)SD Pipe - (31)	8.93	24	Cir	5.606	1654.83	1655.23	7.135	1656.34	1656.30	n/a	1656.30 j	1	Manhole
18	Pipe - (4)	8.95	18	Cir	30.991	1655.30	1656.88	5.100	1656.30	1658.04	0.58	1658.04	17	Manhole
19	Pipe - (3)	10.18	18	Cir	25.589	1656.93	1658.23	5.100	1658.04	1659.46	0.67	1659.46	18	Manhole
20	(E)SD Pipe - (27)	7.47	15	Cir	96.043	1659.13	1661.81	2.790	1659.90	1662.90	0.68	1662.90	19	Manhole
21	(E)SD Pipe - (26)	2.03	12	Cir	47.504	1661.81	1662.47	1.389	1662.90	1663.08	n/a	1663.08 j	20	Manhole
22	(E)SD Pipe - (32)	2.07	15	Cir	54.879	1663.17	1664.27	2.004	1663.57	1664.84	n/a	1664.84	21	None
23	(E)SD Pipe - (33)	3.02	12	Cir	35.201	1662.36	1663.06	1.989	1662.90	1663.80	0.36	1663.80	20	None
24	(E)SD Pipe - (34)	3.02	15	Cir	24.739	1660.93	1661.43	2.021	1661.42	1662.13	n/a	1662.13	19	None

Project File: STA 45 to 56.stm | Number of lines: 29 | Run Date: 1/22/2025

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
25	SD Pipe - (36)	3.02	18	Cir	156.839	1656.98	1658.55	1.000	1658.04	1659.21	n/a	1659.21 j	18	Manhole
26	SD Pipe - (10)	2.65	12	Cir	24.528	1658.65	1659.14	2.000	1659.21	1659.84	n/a	1659.84	25	Manhole
27	Pipe - (6)	2.66	12	Cir	19.321	1659.24	1659.63	2.000	1659.84	1660.33	0.28	1660.33	26	Manhole
28	Pipe - (7)	2.67	12	Cir	43.691	1659.73	1664.79	11.581	1660.33	1665.49	n/a	1665.49	27	Manhole
29	SD Pipe - (12)	0.66	12	Cir	24.722	1658.65	1659.14	1.982	1659.21	1659.48	n/a	1659.48 j	25	Manhole

Project File: STA 45 to 56.stm | Number of lines: 29 | Run Date: 1/22/2025

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	17.64	1648.65	1649.35	0.70	0.99	17.89	0.75	1650.10	0.000	83.664	1654.83	1656.34	1.51**	2.55	6.92	0.75	1657.09	0.000	0.000	n/a	0.75	n/a
2	18	10.71	1654.83	1656.34	1.50	1.58	6.06	0.57	1656.91	0.887	246.259	1659.84	1661.10 j	1.26**	1.58	6.78	0.72	1661.81	0.856	0.872	n/a	1.00	0.72
3	18	10.44	1660.04	1661.10	1.06	1.33	7.86	0.69	1661.79	0.000	50.845	1662.49	1663.73	1.24**	1.56	6.68	0.69	1664.43	0.000	0.000	n/a	0.99	n/a
4	18	5.59	1662.59	1663.73	1.14	1.12	3.86	0.38	1664.12	0.000	289.644	1677.48	1678.39 j	0.91**	1.12	4.97	0.38	1678.78	0.000	0.000	n/a	1.00	0.38
5	18	4.24	1677.58	1678.39	0.81	0.94	4.35	0.32	1678.71	0.000	249.439	1688.27	1689.06 j	0.79**	0.94	4.51	0.32	1689.37	0.000	0.000	n/a	1.00	n/a
6	12	2.64	1689.11	1689.72	0.61*	0.50	5.28	0.32	1690.03	0.000	13.004	1689.24	1689.93	0.70**	0.58	4.52	0.32	1690.25	0.000	0.000	n/a	0.15	n/a
7	12	2.64	1689.24	1689.93	0.70	0.58	4.53	0.32	1690.25	0.000	20.273	1689.64	1690.34	0.70**	0.58	4.53	0.32	1690.66	0.000	0.000	n/a	0.16	n/a
8	12	2.65	1694.60	1694.96	0.36*	0.25	10.57	0.32	1695.28	0.000	22.293	1696.03	1696.73	0.70**	0.58	4.53	0.32	1697.05	0.000	0.000	n/a	0.18	0.06
9	12	2.65	1696.13	1696.78	0.65*	0.54	4.89	0.32	1697.10	0.000	7.256	1696.20	1696.90	0.70**	0.58	4.53	0.32	1697.22	0.000	0.000	n/a	1.00	0.32
10	18	1.73	1688.37	1689.06	0.69	0.51	2.18	0.18	1689.24	0.000	119.532	1693.15	1693.64 j	0.49**	0.51	3.41	0.18	1693.82	0.000	0.000	n/a	1.00	n/a
11	12	1.73	1693.25	1693.64	0.39	0.29	6.03	0.23	1693.87	0.000	21.229	1693.67	1694.23	0.56**	0.45	3.83	0.23	1694.46	0.000	0.000	n/a	0.96	0.22
12	12	1.74	1693.77	1694.23	0.46	0.36	4.88	0.23	1694.46	0.000	32.907	1695.73	1696.29	0.56**	0.45	3.84	0.23	1696.52	0.000	0.000	n/a	0.52	n/a
13	12	1.75	1695.83	1696.29	0.46	0.35	4.95	0.23	1696.52	0.000	48.590	1696.80	1697.36	0.56**	0.45	3.85	0.23	1697.59	0.000	0.000	n/a	1.00	n/a
14	12	1.52	1677.96	1678.39	0.43	0.33	4.66	0.21	1678.60	0.000	12.613	1678.21	1678.73	0.52**	0.42	3.66	0.21	1678.94	0.000	0.000	n/a	1.00	0.21
15	12	0.07	1677.58	1678.39	0.81	0.04	0.10	0.04	1678.43	0.000	36.625	1678.32	1678.43 j	0.10**	0.04	1.52	0.04	1678.46	0.000	0.000	n/a	1.00	0.04
16	12	0.66	1663.97	1664.13	0.16*	0.08	8.01	0.12	1664.26	0.000	33.250	1667.50	1667.84	0.34**	0.23	2.83	0.12	1667.96	0.000	0.000	n/a	1.00	n/a
17	24	8.93	1654.83	1656.34	1.51	1.70	3.50	0.43	1656.77	0.000	5.606	1655.23	1656.30 j	1.07**	1.70	5.25	0.43	1656.72	0.000	0.000	n/a	0.77	0.33
18	18	8.95	1655.30	1656.30	1.00	1.25	7.19	0.58	1656.88	0.000	30.991	1656.88	1658.04	1.16**	1.46	6.12	0.58	1658.62	0.000	0.000	n/a	1.00	0.58
19	18	10.18	1656.93	1658.04	1.11	1.41	7.25	0.67	1658.71	0.000	25.589	1658.23	1659.46	1.23**	1.55	6.58	0.67	1660.13	0.000	0.000	n/a	1.00	0.67
20	15	7.47	1659.13	1659.90	0.77*	0.79	9.48	0.68	1660.57	0.000	96.043	1661.81	1662.90	1.09**	1.13	6.59	0.68	1663.57	0.000	0.000	n/a	1.00	0.68
21	12	2.03	1661.81	1662.90	1.00	0.50	2.58	0.10	1663.00	0.325	47.504	1662.47	1663.08 j	0.61**	0.50	4.06	0.26	1663.33	0.693	0.509	n/a	1.00	0.26
22	15	2.07	1663.17	1663.57	0.40*	0.34	6.02	0.22	1663.80	0.000	54.879	1664.27	1664.84	0.57**	0.55	3.77	0.22	1665.06	0.000	0.000	n/a	1.00	n/a

Project File: STA 45 to 56.stm | Number of lines: 29 | Run Date: 1/22/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

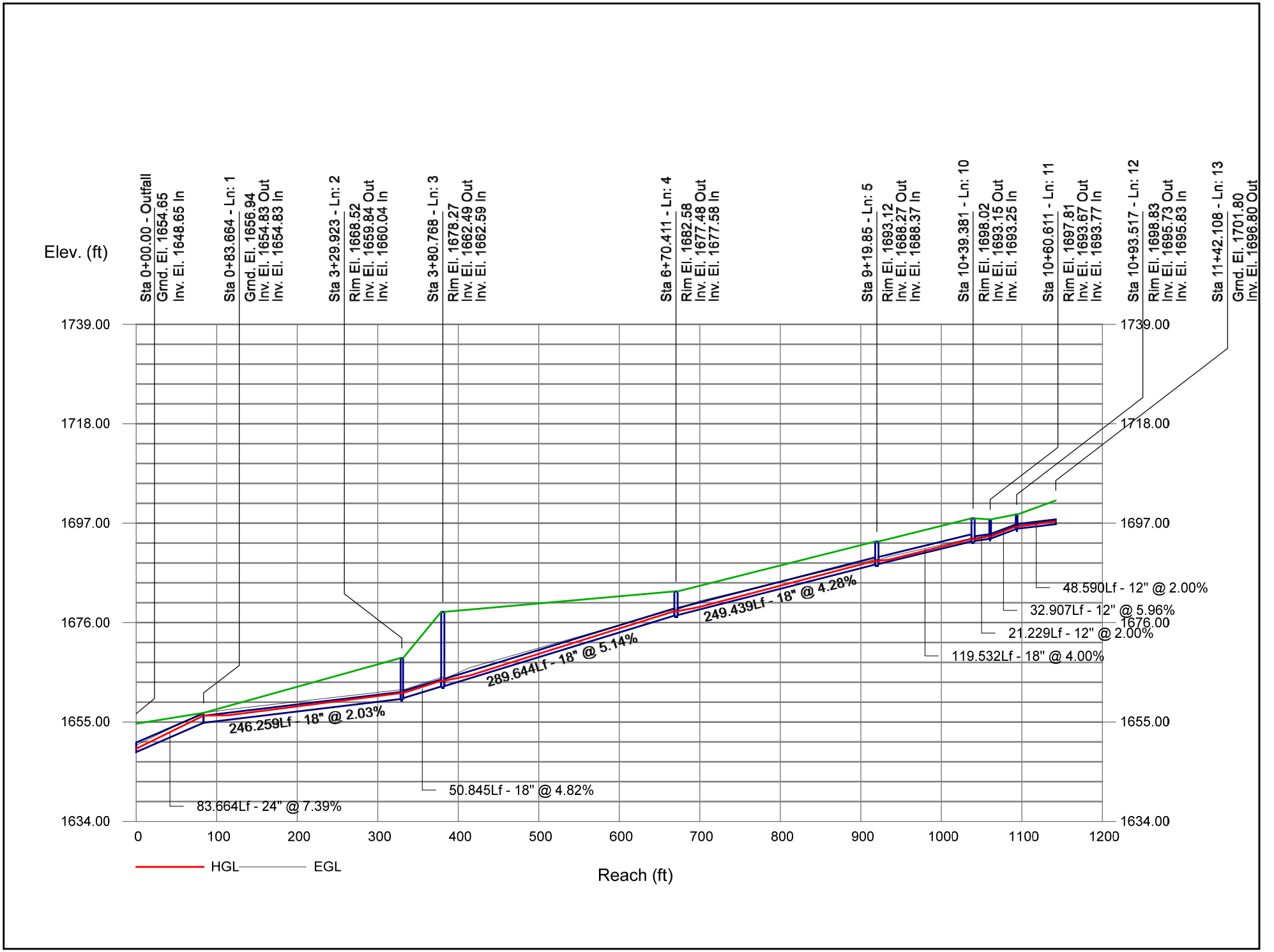
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
23	12	3.02	1662.36	1662.90	0.54	0.43	7.03	0.36	1663.26	0.000	35.201	1663.06	1663.80	0.74**	0.63	4.82	0.36	1664.17	0.000	0.000	n/a	1.00	0.36
24	15	3.02	1660.93	1661.42	0.49*	0.45	6.70	0.29	1661.71	0.000	24.739	1661.43	1662.13	0.70**	0.71	4.28	0.29	1662.41	0.000	0.000	n/a	1.00	n/a
25	18	3.02	1656.98	1658.04	1.06	0.75	2.27	0.25	1658.29	0.000	156.839	1658.55	1659.21 j	0.66**	0.75	4.03	0.25	1659.46	0.000	0.000	n/a	1.00	0.25
26	12	2.65	1658.65	1659.21	0.56	0.45	5.87	0.32	1659.53	0.000	24.528	1659.14	1659.84	0.70**	0.58	4.54	0.32	1660.16	0.000	0.000	n/a	0.77	n/a
27	12	2.66	1659.24	1659.84	0.60	0.49	5.43	0.32	1660.16	0.000	19.321	1659.63	1660.33	0.70**	0.59	4.54	0.32	1660.65	0.000	0.000	n/a	0.86	0.28
28	12	2.67	1659.73	1660.33	0.59	0.49	5.49	0.32	1660.65	0.000	43.691	1664.79	1665.49	0.70**	0.59	4.55	0.32	1665.81	0.000	0.000	n/a	1.00	n/a
29	12	0.66	1658.65	1659.21	0.56	0.23	1.47	0.12	1659.33	0.000	24.722	1659.14	1659.48 j	0.34**	0.23	2.83	0.12	1659.60	0.000	0.000	n/a	1.00	n/a

Project File: STA 45 to 56.stm | Number of lines: 29 | Run Date: 1/22/2025

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

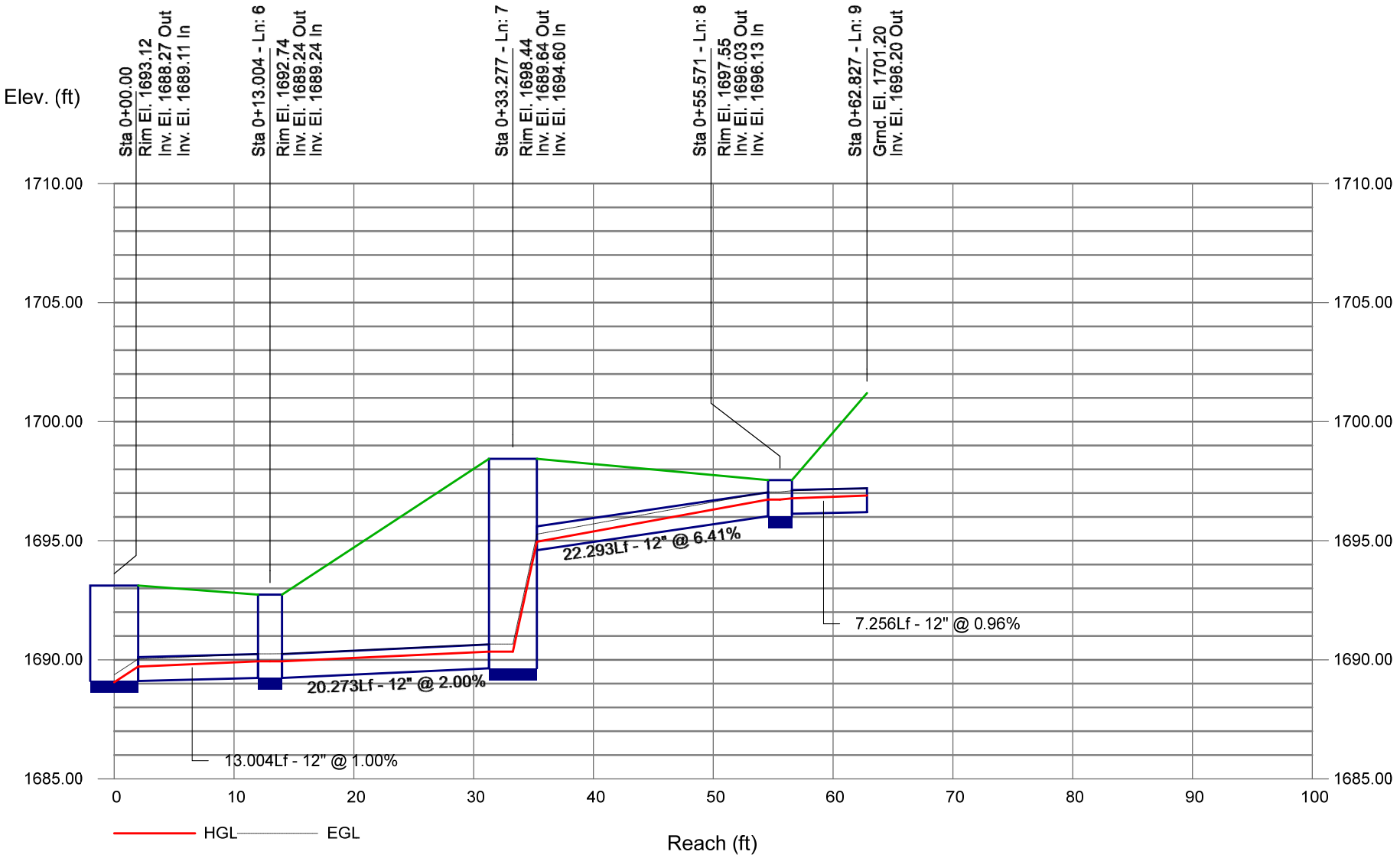
Storm Sewer Profile

Proj. file: STA 45 to 56.stm



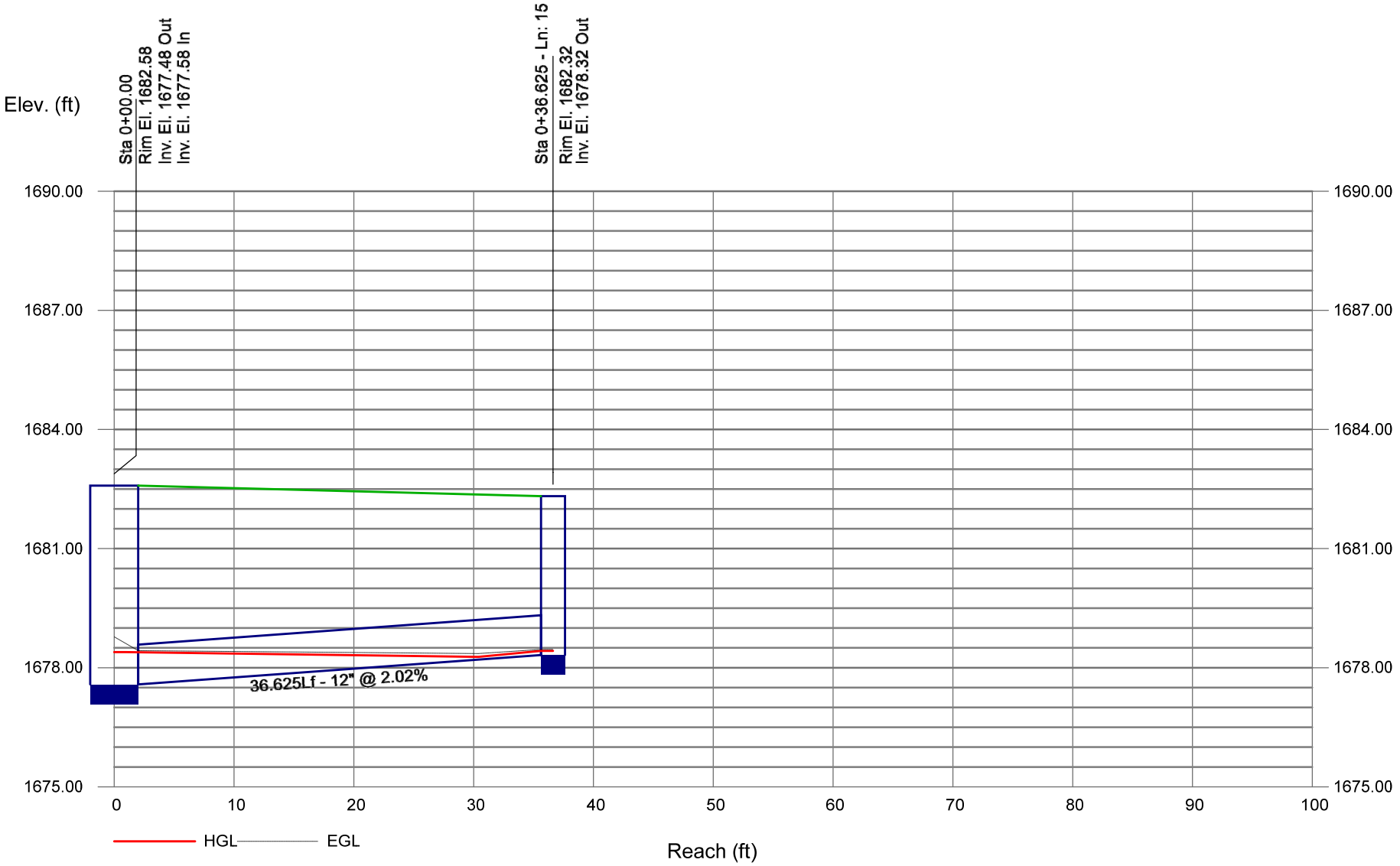
Storm Sewer Profile

Proj. file: STA 45 to 56.stm



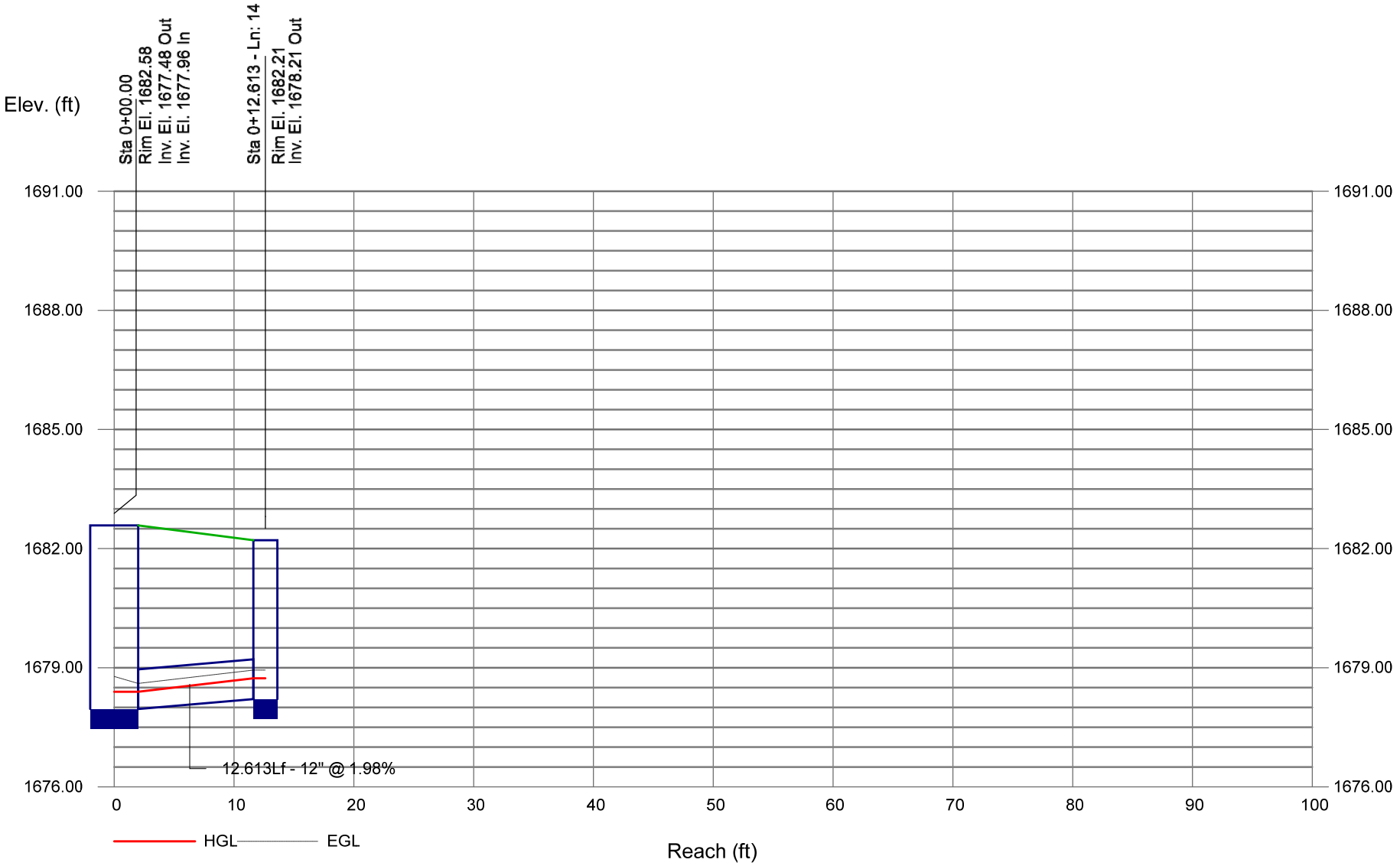
Storm Sewer Profile

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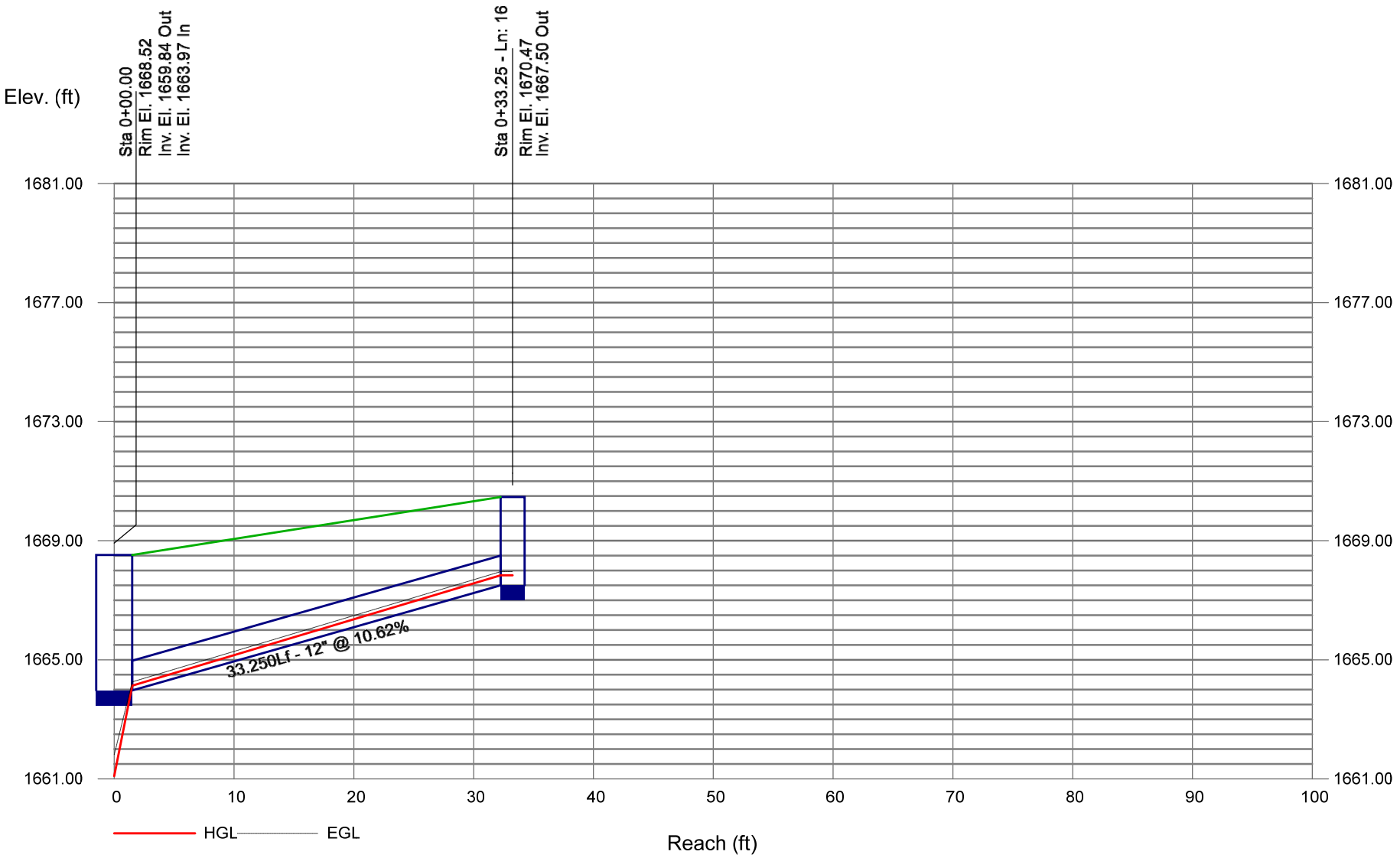
Storm Sewer Profile

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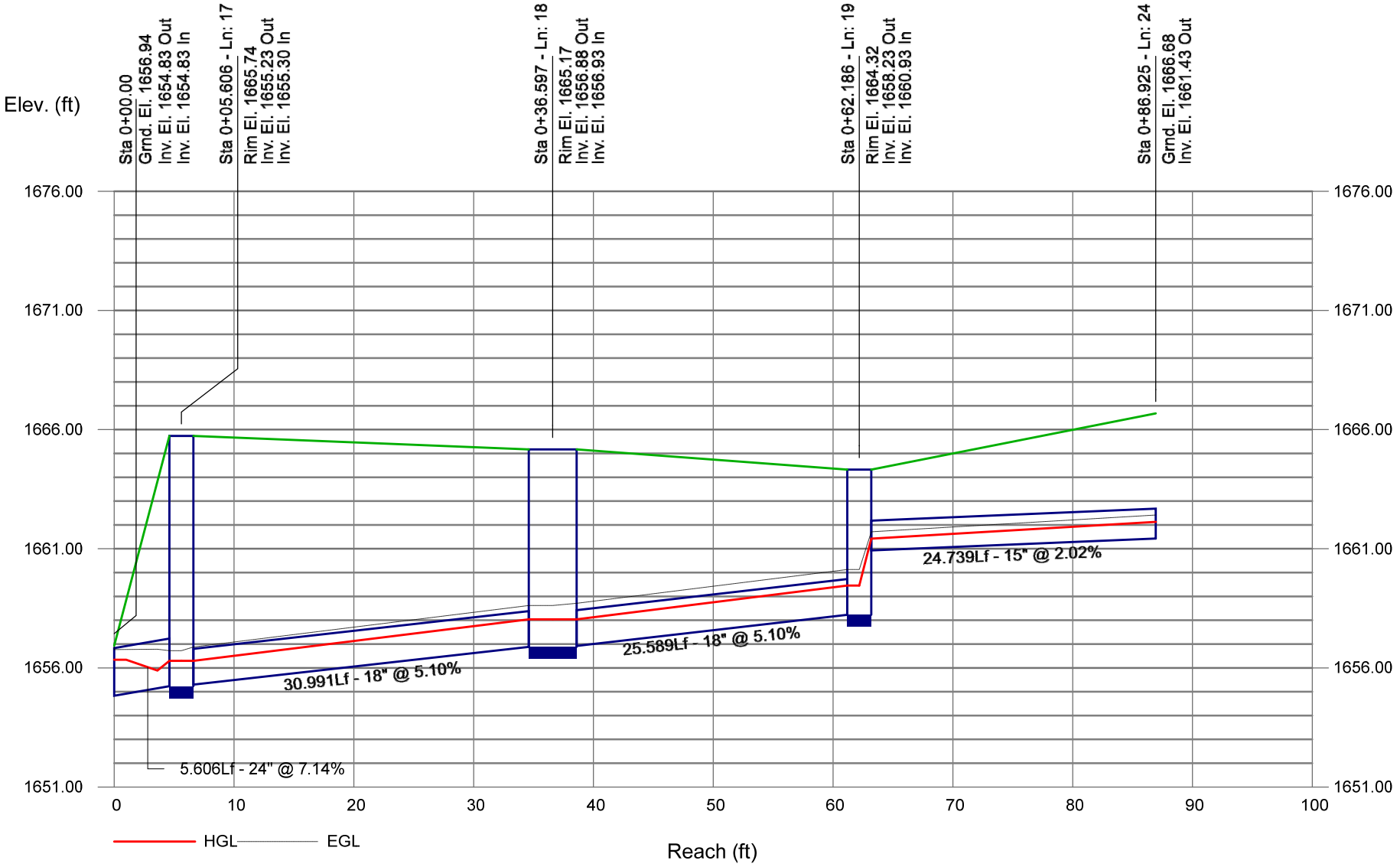
Storm Sewer Profile

Proj. file: STA 45 to 56.stm



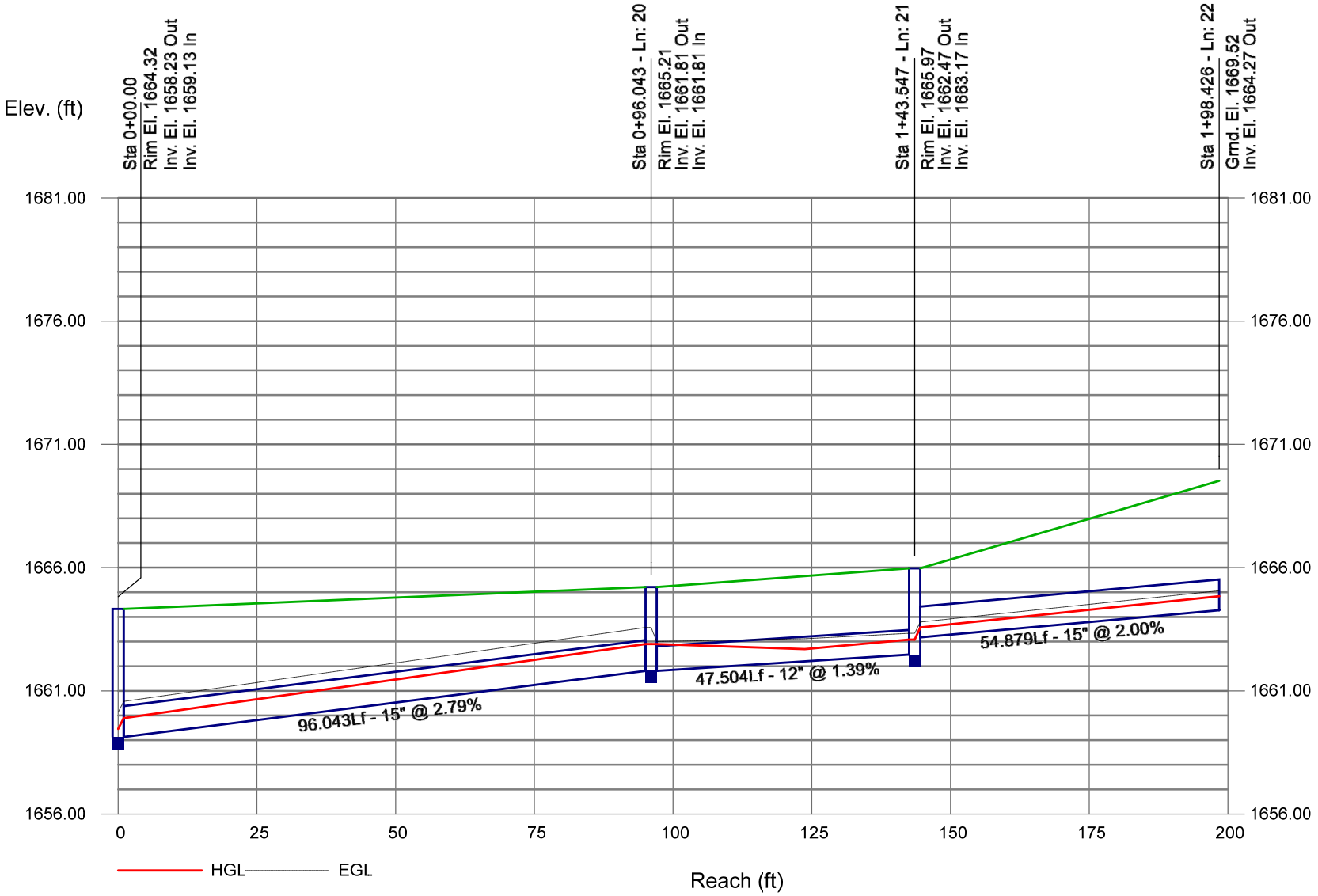
Storm Sewer Profile

Proj. file: STA 45 to 56.stm



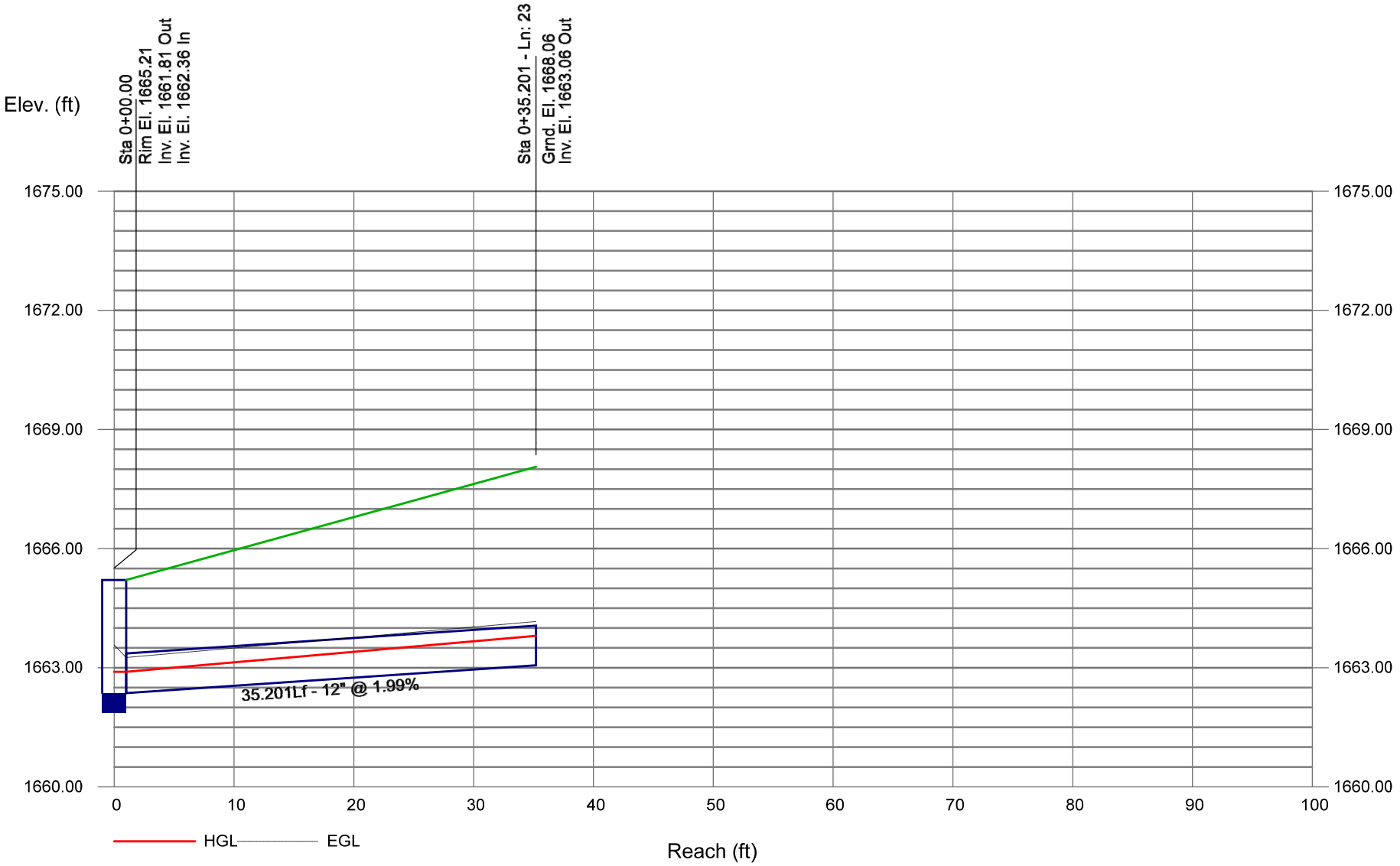
Storm Sewer Profile

Proj. file: STA 45 to 56.stm



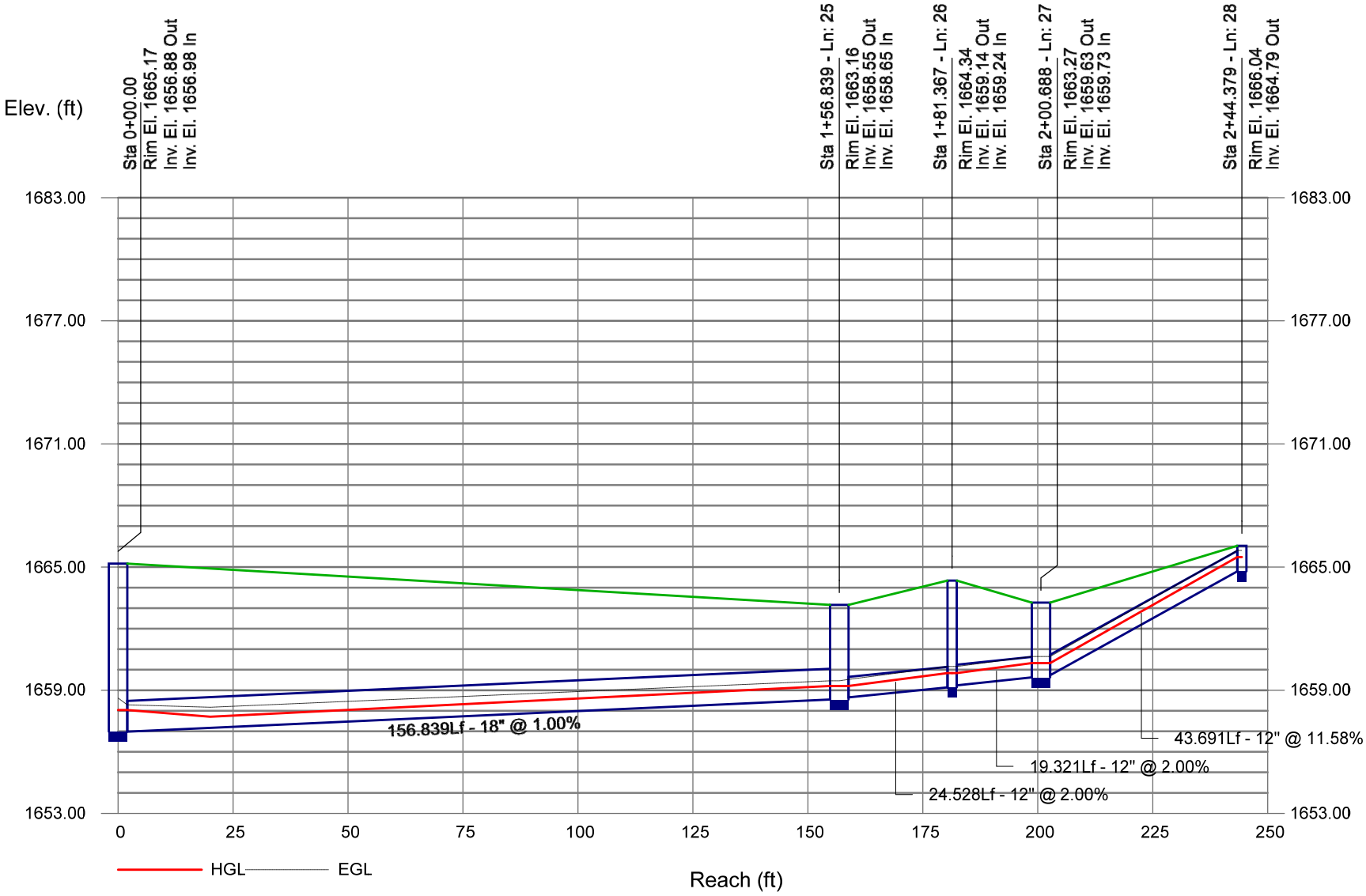
Storm Sewer Profile

Proj. file: STA 45 to 56.stm



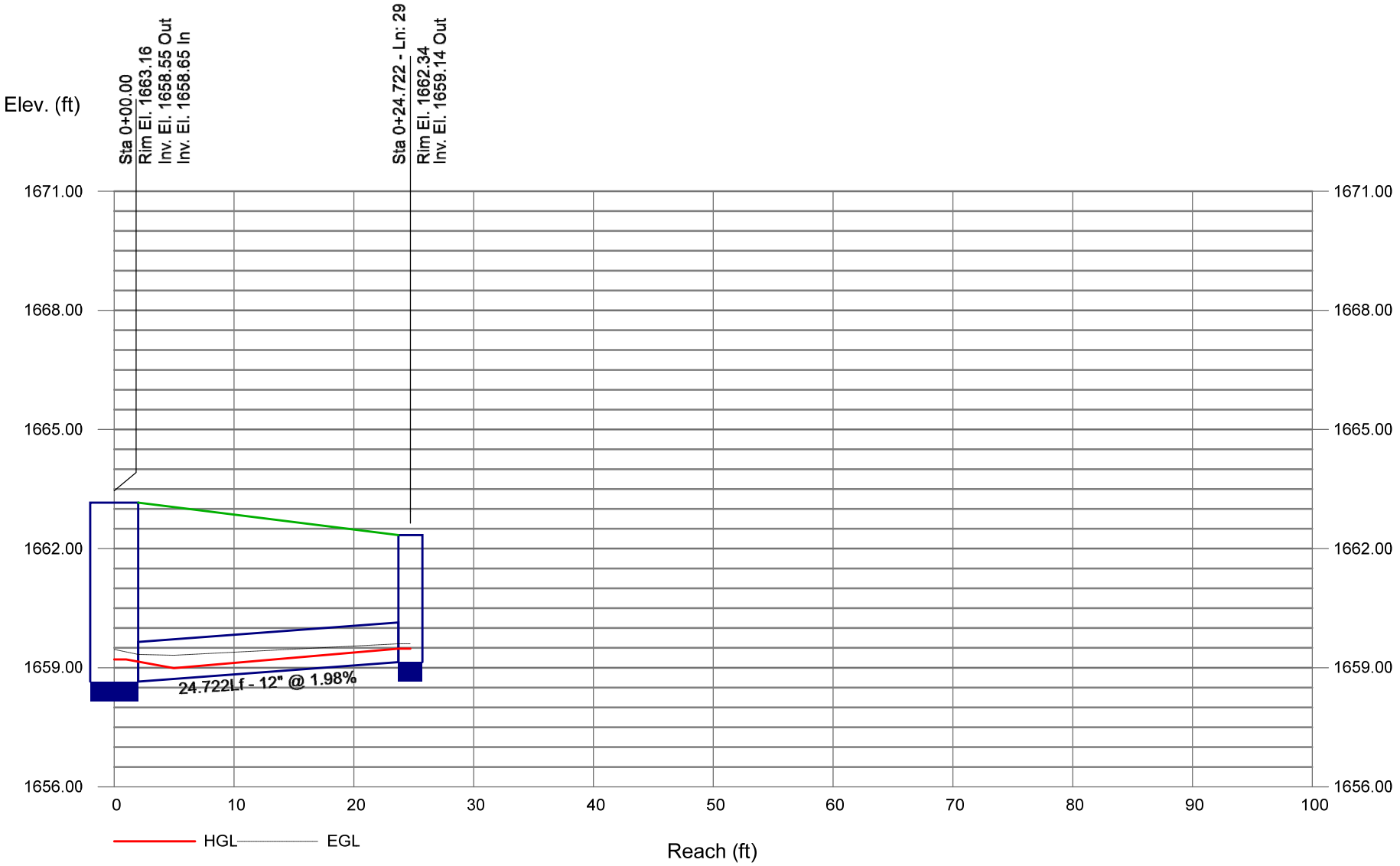
Storm Sewer Profile

Proj. file: STA 45 to 56.stm

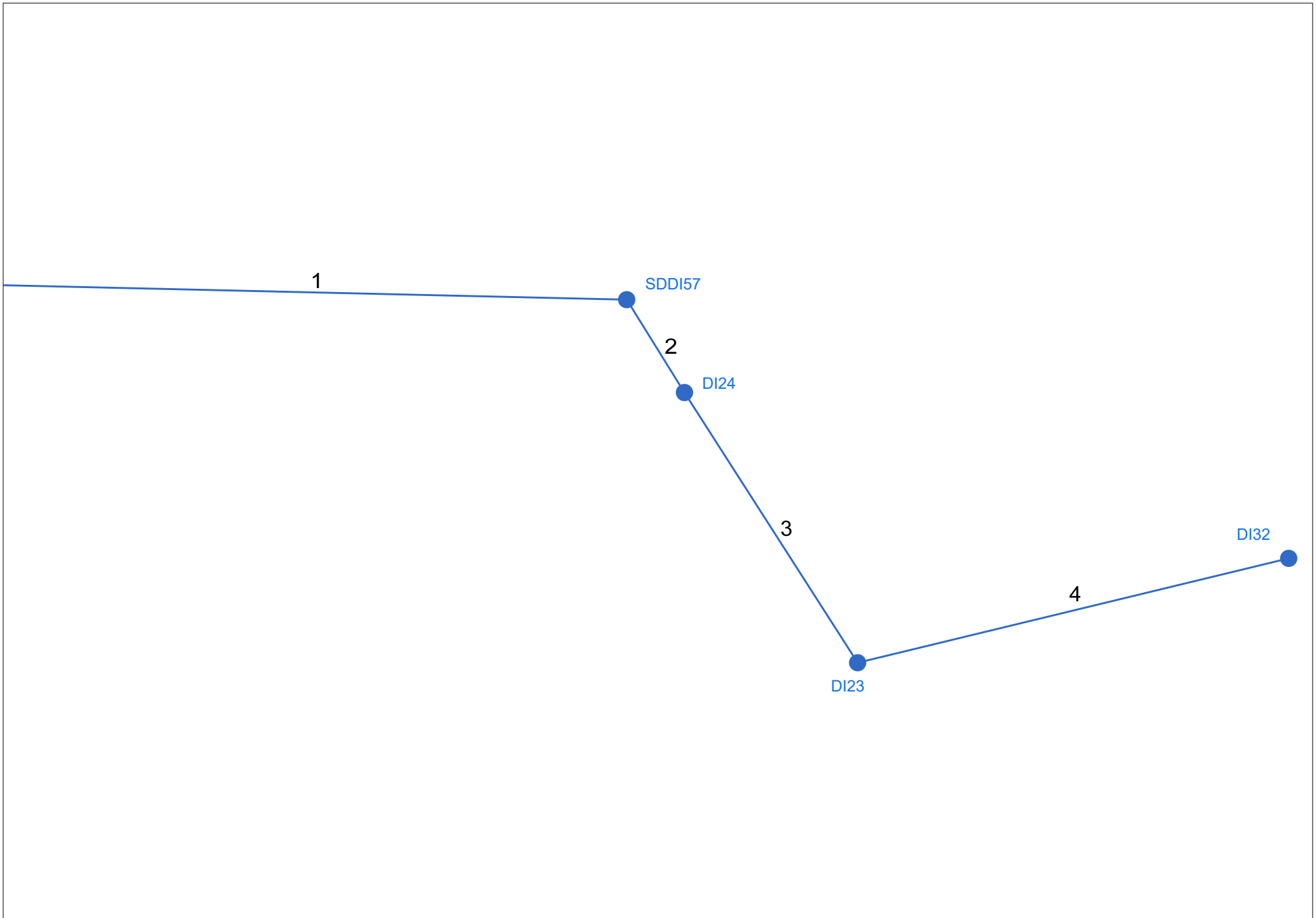


Storm Sewer Profile

Proj. file: STA 45 to 56.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2025-0820 56.stm	Number of lines: 4	Date: 8/28/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	82.211	1.636	MH	0.00	0.01	0.00	5.0	1648.16	2.43	1650.16	12	Cir	0.012	0.90	1657.94	(E)SD Pipe - (37)
2	1	16.890	61.360	MH	0.00	0.35	0.95	5.0	1650.31	7.05	1651.50	15	Cir	0.013	0.15	1662.68	(E)SD Pipe - (36)
3	2	49.493	0.000	MH	0.00	14.12	0.74	25.0	1651.50	7.05	1654.99	18	Cir	0.012	0.99	1662.62	SD Pipe - (51)
4	3	58.358	-79.929	MH	0.00	6.09	0.53	30.0	1655.92	3.99	1658.25	12	Cir	0.012	1.00	1664.00	SD Pipe - (37)

Project File: 2025-0820 56.stm

Number of lines: 4

Date: 8/28/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	(E)SD Pipe - (37)	19.81	12	Cir	82.211	1648.16	1650.16	2.433	1649.16*	1670.84*	8.90	1679.74	End	Manhole
2	(E)SD Pipe - (36)	19.81	15	Cir	16.890	1650.31	1651.50	7.045	1679.74*	1681.33*	0.61	1681.94	1	Manhole
3	SD Pipe - (51)	19.37	18	Cir	49.493	1651.50	1654.99	7.051	1681.94*	1683.37*	1.85	1685.22	2	Manhole
4	SD Pipe - (37)	4.58	12	Cir	58.358	1655.92	1658.25	3.993	1685.22*	1686.04*	0.53	1686.57	3	Manhole

Project File: 2025-0820 56.stm | Number of lines: 4 | Run Date: 8/28/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

Hydraulic Grade Line Computations

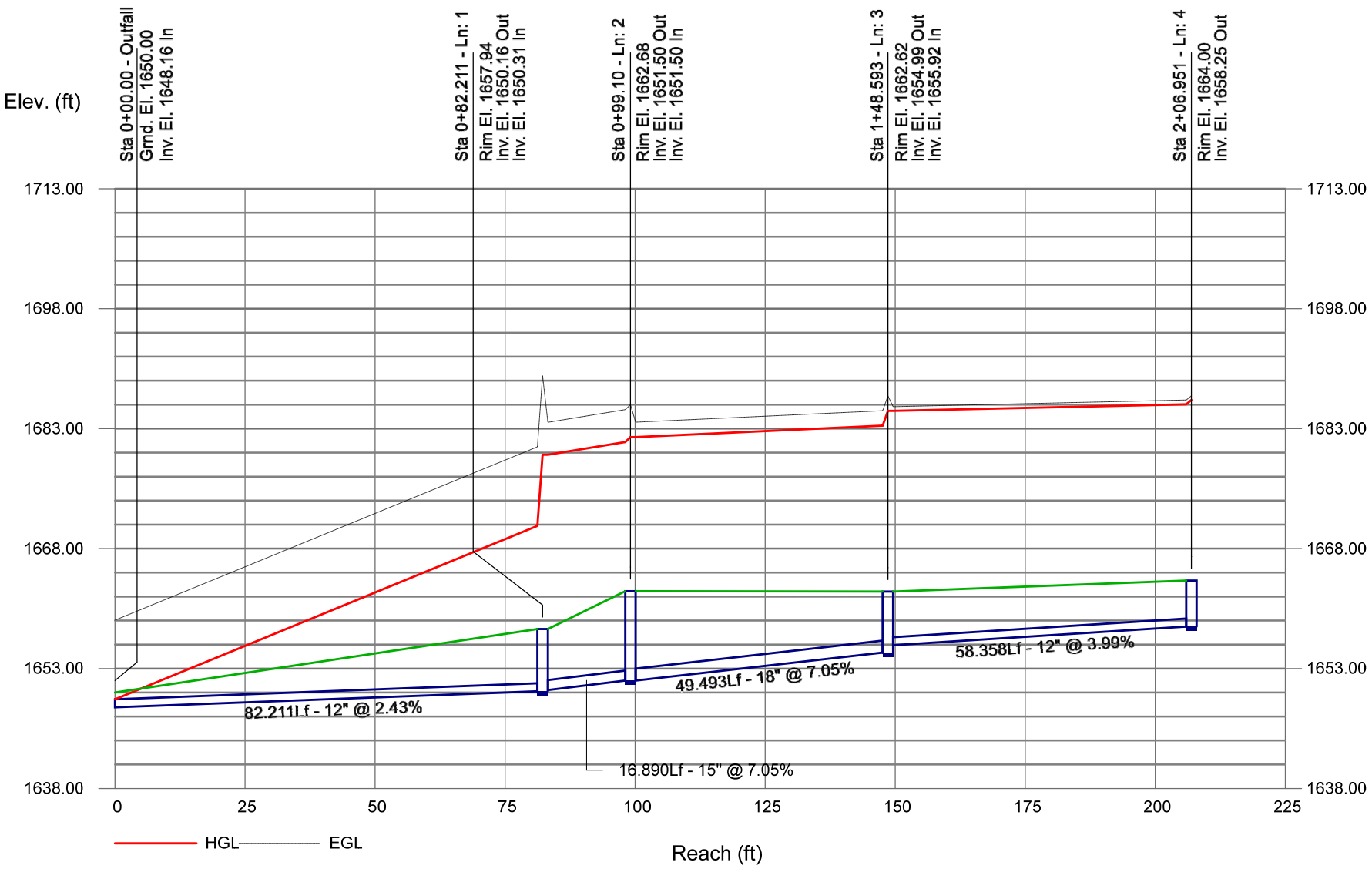
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	12	19.81	1648.16	1649.16	1.00	0.79	25.22	9.89	1659.05	26.367	82.211	1650.16	1670.84	1.00**	0.79	25.22	9.89	1680.72	26.357	26.362	21.67	0.90	8.90
2	15	19.81	1650.31	1679.74	1.25	1.23	16.15	4.05	1683.79	9.417	16.890	1651.50	1681.33	1.25**	1.23	16.14	4.05	1685.38	9.414	9.415	1.590	0.15	0.61
3	18	19.37	1651.50	1681.94	1.50	1.77	10.96	1.87	1683.80	2.899	49.493	1654.99	1683.37	1.50	1.77	10.96	1.87	1685.24	2.898	2.899	1.435	0.99	1.85
4	12	4.58	1655.92	1685.22	1.00	0.79	5.84	0.53	1685.75	1.412	58.358	1658.25	1686.04	1.00	0.79	5.84	0.53	1686.57	1.411	1.412	0.824	1.00	0.53

Project File: 2025-0820 56.stm | Number of lines: 4 | Run Date: 8/28/2025

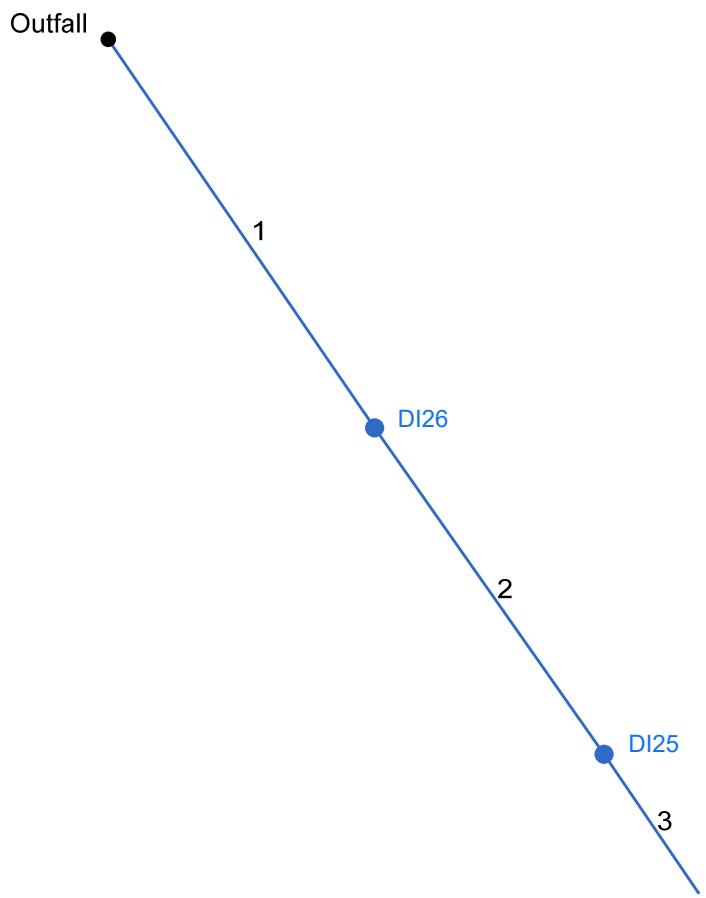
Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: 2025-0820 56.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2025-0820 STA 70.stm	Number of lines: 3	Date: 8/28/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	57.943	55.590	MH	0.00	0.08	0.95	5.0	1654.29	10.54	1660.40	15	Cir	0.012	0.15	1670.01	(E)SD Pipe - (38)
2	1	48.756	-0.089	MH	0.00	0.96	0.95	5.0	1660.40	10.54	1665.54	15	Cir	0.012	0.15	1669.53	(E)SD Pipe - (38)
3	2	20.620	-0.425	None	0.00	5.73	0.53	10.0	1665.82	2.04	1666.24	18	Cir	0.012	1.00	0.00	(E)SD Pipe - (39)

Project File: 2025-0820 STA 70.stm

Number of lines: 3

Date: 8/28/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	(E)SD Pipe - (38) (1)	9.87	15	Cir	57.943	1654.29	1660.40	10.545	1654.87	1661.58	n/a	1661.58	End	Manhole
2	(E)SD Pipe - (38)	9.73	15	Cir	48.756	1660.40	1665.54	10.542	1661.58	1666.72	n/a	1666.72 j	1	Manhole
3	(E)SD Pipe - (39)	7.50	18	Cir	20.620	1665.82	1666.24	2.037	1666.72	1667.30	0.49	1667.30	2	None

Project File: 2025-0820 STA 70.stm | Number of lines: 3 | Run Date: 8/28/2025

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Hydraulic Grade Line Computations

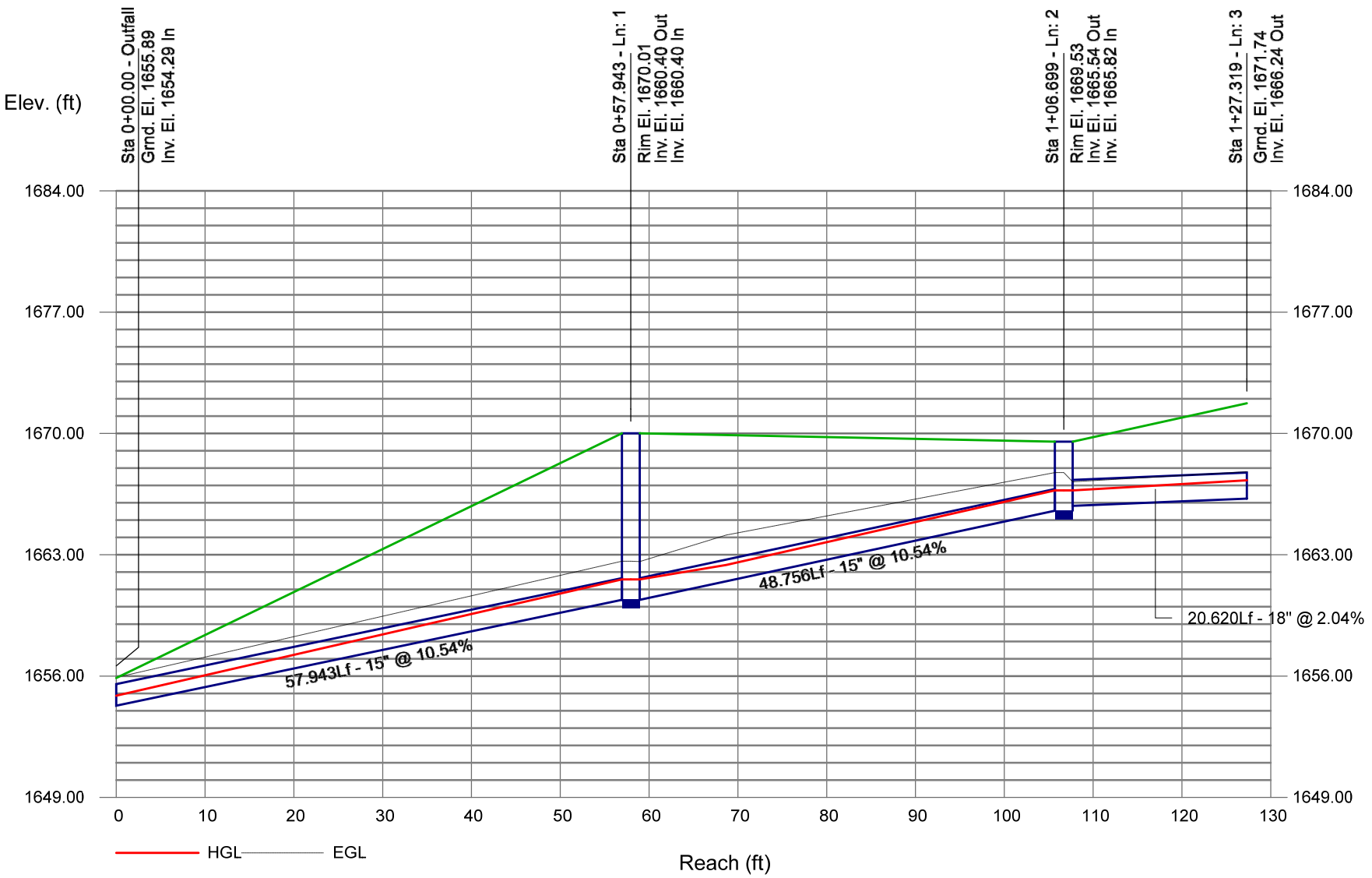
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	15	9.87	1654.29	1654.87	0.58	0.56	17.70	1.05	1655.92	0.000	57.943	1660.40	1661.58	1.18**	1.20	8.22	1.05	1662.63	0.000	0.000	n/a	0.15	n/a
2	15	9.73	1660.40	1661.58	1.18	1.20	8.11	1.02	1662.61	0.000	48.756	1665.54	1666.72 j	1.18**	1.20	8.12	1.02	1667.74	0.000	0.000	n/a	0.15	0.15
3	18	7.50	1665.82	1666.72	0.90	1.10	6.80	0.49	1667.21	0.000	20.620	1666.24	1667.30	1.06**	1.34	5.62	0.49	1667.79	0.000	0.000	n/a	1.00	0.49

Project File: 2025-0820 STA 70.stm | Number of lines: 3 | Run Date: 8/28/2025

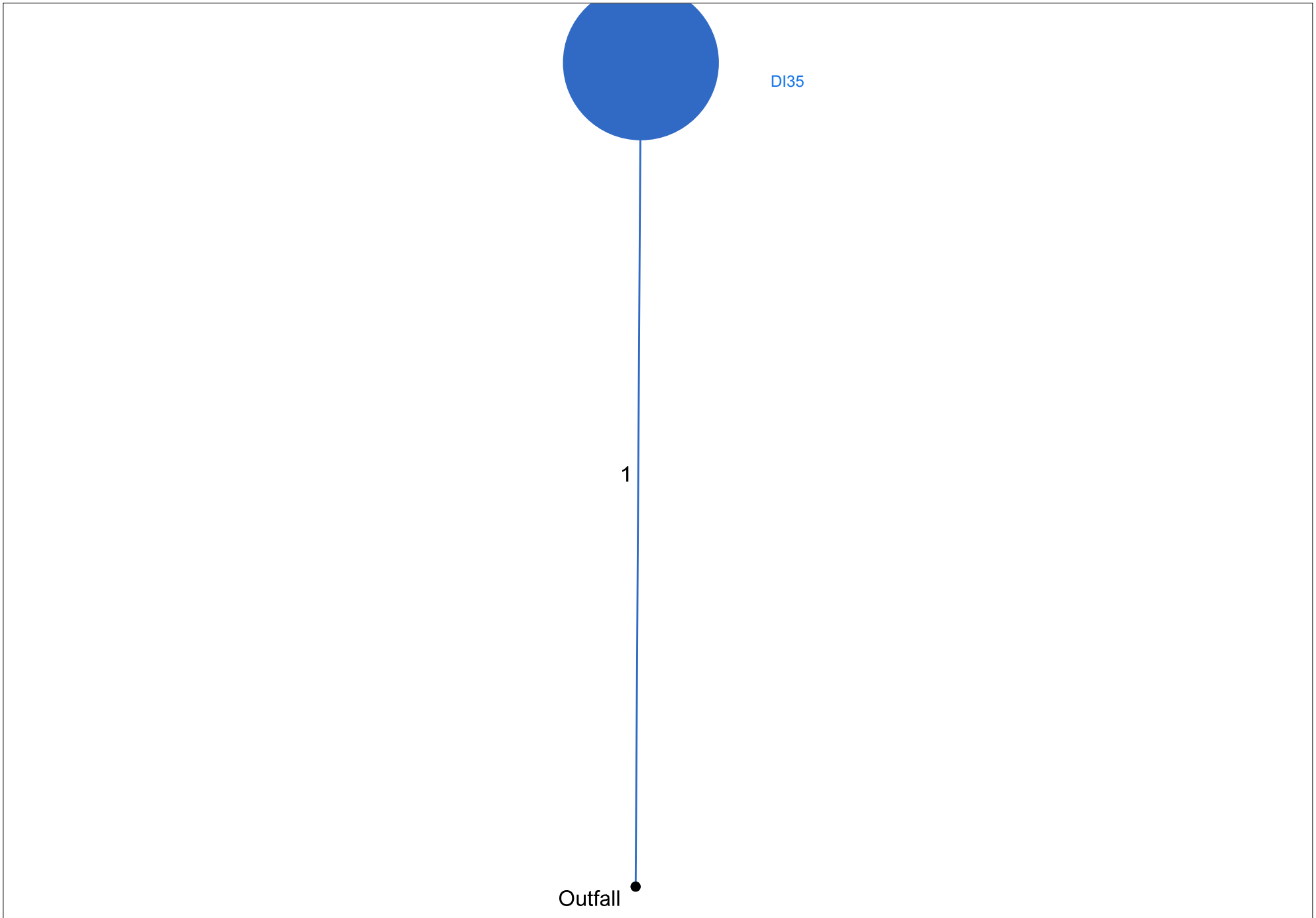
Notes: ; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: 2025-0820 STA 70.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: sta 70.stm	Number of lines: 1	Date: 2/7/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	21.490	-89.637	DrGrt	0.00	0.19	0.95	5.0	1677.41	0.98	1677.62	18	Cir	0.012	1.00	1679.96	

Project File: sta 70.stm | Number of lines: 1 | Date: 2/7/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		0.63	18	Cir	21.490	1677.41	1677.62	0.977	1677.65	1677.91	n/a	1677.91	End	DropGrate

Project File: sta 70.stm | Number of lines: 1 | Run Date: 2/7/2025

NOTES: Return period = 10 Yrs.

Hydraulic Grade Line Computations

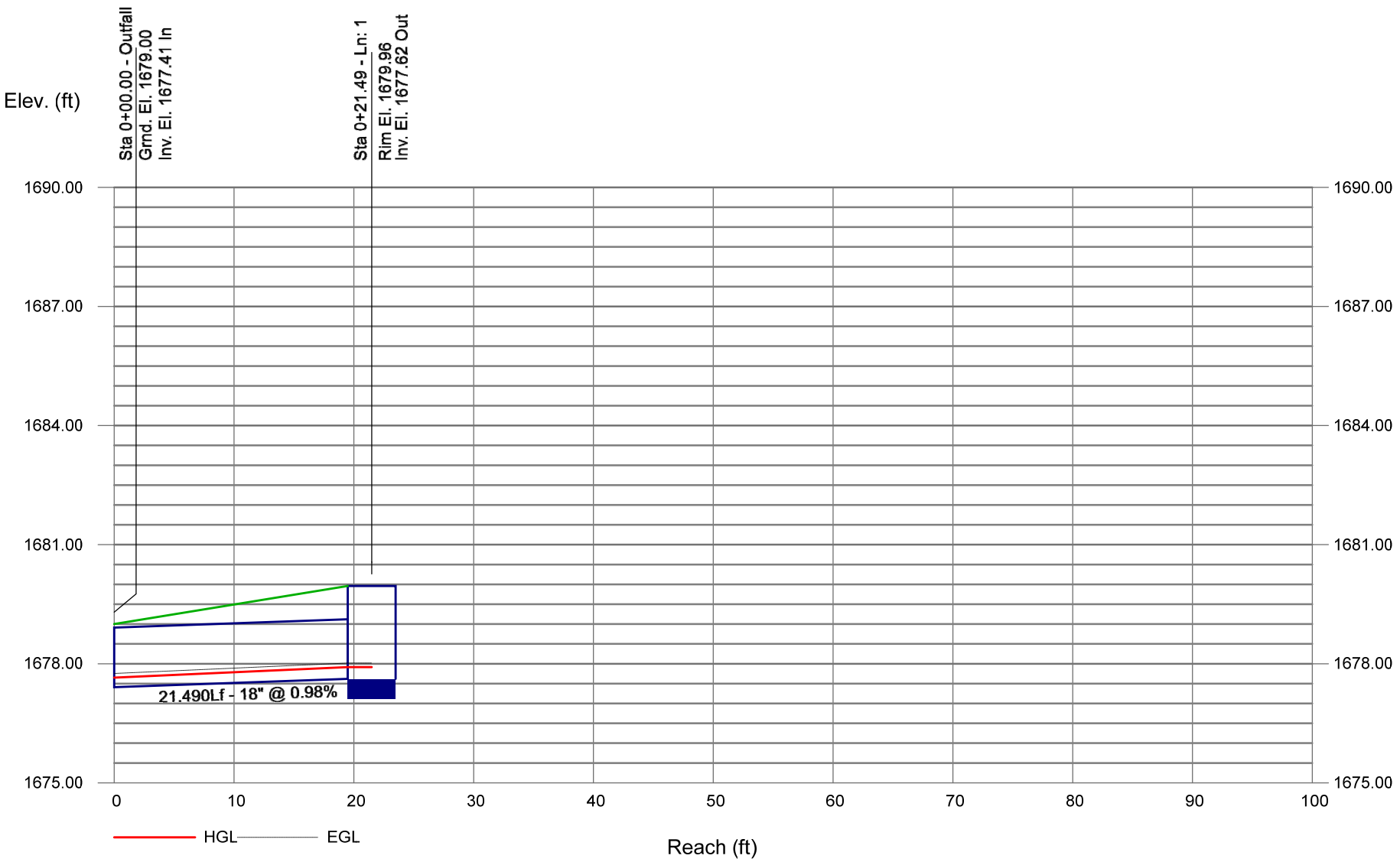
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	0.63	1677.41	1677.65	0.24	0.18	3.43	0.10	1677.75	0.000	21.490	1677.62	1677.91	0.29**	0.24	2.57	0.10	1678.02	0.000	0.000	n/a	1.00	n/a

Project File: sta 70.stm | Number of lines: 1 | Run Date: 2/7/2025

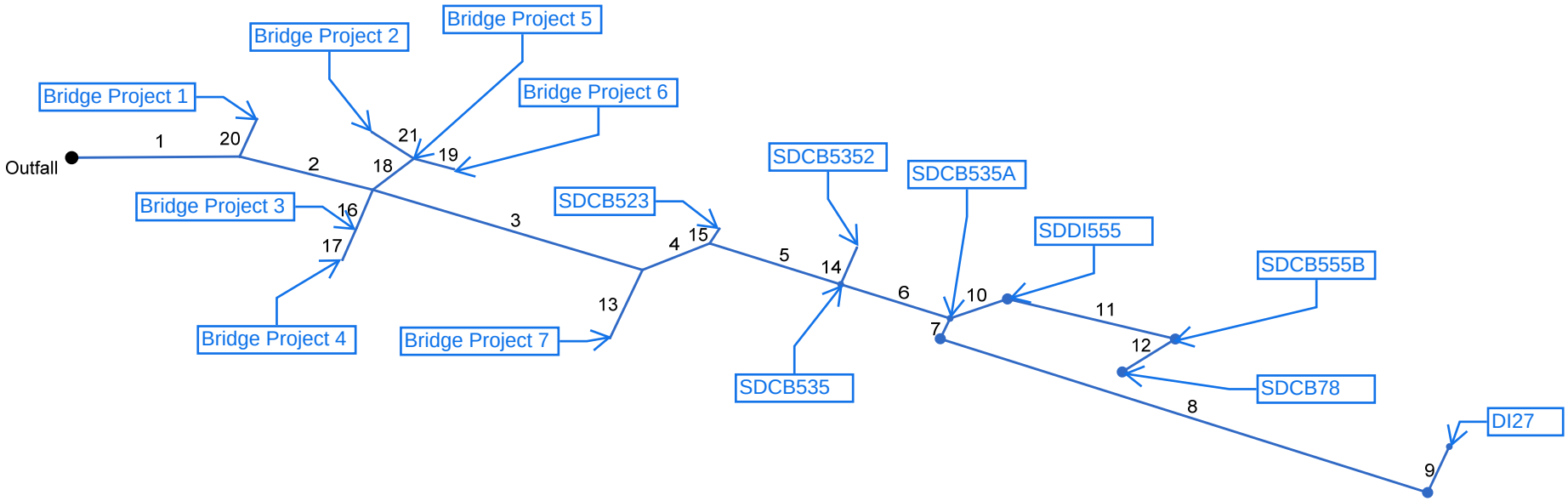
Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: sta 70.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Revised 2 BRIDGE TO STA 80.stm	Number of lines: 21	Date: 9/30/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	77.653	-0.439	MH	0.00	0.00	0.00	0.0	1668.09	5.04	1672.00	24	Cir	0.013	0.94	1678.07	2b
2	1	64.599	17.619	MH	0.00	0.00	0.00	0.0	1672.00	2.48	1673.60	18	Cir	0.013	1.00	1677.56	2h
3	2	132.578	3.247	MH	0.00	0.00	0.00	0.0	1673.60	0.35	1674.07	18	Cir	0.013	1.00	1678.50	2s
4	3	34.856	-46.386	MH	0.00	0.00	0.00	0.0	1674.08	0.29	1674.18	18	Cir	0.013	0.77	1677.61	2v
5	4	64.950	47.279	MH	0.00	0.00	0.00	0.0	1674.28	0.71	1674.74	18	Cir	0.013	1.00	1678.94	(E)SD Pipe - (49)
6	5	53.972	0.058	MH	0.00	0.06	0.95	5.0	1675.54	3.52	1677.44	18	Cir	0.013	1.00	1679.90	(E)SD Pipe - (48)
7	6	12.499	89.936	MH	0.00	0.34	0.95	5.0	1677.54	1.04	1677.67	18	Cir	0.012	1.00	1680.63	SD Pipe - (8)
8	7	241.993	-89.784	MH	0.00	0.00	0.00	0.0	1677.77	0.35	1678.61	18	Cir	0.012	1.00	1685.48	SD Pipe - (7)
9	8	28.390	-90.533	MH	0.00	0.16	0.95	5.0	1680.40	2.01	1680.97	18	Cir	0.012	1.00	1684.47	SD Pipe - (6)
10	6	28.642	-44.523	MH	0.00	0.08	0.95	5.0	1677.44	1.01	1677.73	12	Cir	0.013	0.69	1681.73	(E)SD Pipe - (47)
11	10	81.000	39.672	MH	0.00	0.17	0.95	5.0	1677.73	0.06	1677.78	12	Cir	0.013	1.00	1681.78	Pipe - (9)
12	11	31.000	125.568	MH	0.00	0.09	0.95	5.0	1677.78	1.00	1678.09	12	Cir	0.013	1.00	3.50	Pipe - (10)
13	3	42.109	90.570	None	0.00	0.95	0.95	5.0	1674.08	1.00	1674.50	18	Cir	0.013	1.00	1678.02	2x
14	5	22.472	-92.302	None	0.00	0.50	0.95	5.0	1674.74	1.47	1675.07	12	Cir	0.013	1.00	0.00	(E)SD Pipe - (54)
15	4	9.491	-37.912	None	0.00	0.05	0.95	5.0	1674.28	-4.21	1673.88	15	Cir	0.013	1.00	0.00	(E)SD Pipe - (53)
16	2	23.334	92.152	MH	0.00	0.29	0.95	5.0	1673.68	0.39	1673.77	18	Cir	0.013	0.15	1676.97	2n
17	16	19.512	-0.633	None	0.00	0.14	0.95	5.0	1673.73	1.03	1673.93	18	Cir	0.013	1.00	1677.01	2p
18	2	25.960	-61.102	None	0.00	0.06	0.95	5.0	1673.60	0.31	1673.68	18	Cir	0.013	1.00	1676.99	2j
19	18	19.440	62.504	None	0.00	0.12	0.95	5.0	1673.68	0.72	1673.82	18	Cir	0.013	1.00	1676.91	2l
20	1	23.169	-68.837	MH	0.00	0.18	0.95	5.0	1672.07	1.51	1672.42	18	Cir	0.013	1.00	1677.43	2d
21	18	24.620	-97.509	None	0.00	0.37	0.95	5.0	1673.68	0.28	1673.75	18	Cir	0.013	1.00	1675.25	

Project File: Revised 2 BRIDGE TO STA 80.stm

Number of lines: 21

Date: 9/30/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	2b	5.54	24	Cir	77.653	1668.09	1672.00	5.035	1668.54	1672.83	0.30	1672.83	End	Manhole
2	2h	5.28	18	Cir	64.599	1672.00	1673.60	2.477	1672.83	1674.49	0.37	1674.49	1	Manhole
3	2s	3.80	18	Cir	132.578	1673.60	1674.07	0.354	1674.87	1675.34	n/a	1675.59	2	Manhole
4	2v	2.31	18	Cir	34.856	1674.08	1674.18	0.287	1675.59	1675.64	n/a	1675.70	3	Manhole
5	(E)SD Pipe - (49)	2.26	18	Cir	64.950	1674.28	1674.74	0.708	1675.70	1675.49	n/a	1675.49	4	Manhole
6	(E)SD Pipe - (48)	1.47	18	Cir	53.972	1675.54	1677.44	3.520	1675.93	1678.07	n/a	1678.07	5	Manhole
7	SD Pipe - (8)	0.82	18	Cir	12.499	1677.54	1677.67	1.040	1678.07	1678.11	n/a	1678.11	6	Manhole
8	SD Pipe - (7)	0.46	18	Cir	241.993	1677.77	1678.61	0.347	1678.11	1678.88	n/a	1678.88	7	Manhole
9	SD Pipe - (6)	0.53	18	Cir	28.390	1680.40	1680.97	2.008	1680.59	1681.24	n/a	1681.24	8	Manhole
10	(E)SD Pipe - (47)	0.92	12	Cir	28.642	1677.44	1677.73	1.013	1678.07	1678.15	n/a	1678.15	6	Manhole
11	Pipe - (9)	0.77	12	Cir	81.000	1677.73	1677.78	0.062	1678.50	1678.55	n/a	1678.58	10	Manhole
12	Pipe - (10)	0.30	12	Cir	31.000	1677.78	1678.09	1.000	1678.58	1678.32	n/a	1678.32	11	Manhole
13	2x	3.15	18	Cir	42.109	1674.08	1674.50	0.998	1675.59	1675.61	n/a	1675.69	3	None
14	(E)SD Pipe - (54)	1.66	12	Cir	22.472	1674.74	1675.07	1.468	1675.49	1675.62	n/a	1675.62	5	None
15	(E)SD Pipe - (53)	0.17	15	Cir	9.491	1674.28	1673.88	-4.215	1675.70*	1675.70*	n/a	1675.70	4	None
16	2n	1.28	18	Cir	23.334	1673.68	1673.77	0.386	1674.68	1674.68	n/a	1674.68	2	Manhole
17	2p	0.46	18	Cir	19.512	1673.73	1673.93	1.025	1674.68	1674.14	n/a	1674.14	16	None
18	2j	1.61	18	Cir	25.960	1673.60	1673.68	0.308	1674.68	1674.68	n/a	1674.69	2	None
19	2l	0.40	18	Cir	19.440	1673.68	1673.82	0.720	1674.69	1674.69	n/a	1674.70	18	None
20	2d	0.60	18	Cir	23.169	1672.07	1672.42	1.511	1673.11	1672.81	n/a	1672.81	1	Manhole
21		1.23	18	Cir	24.620	1673.68	1673.75	0.284	1672.88	1673.01	n/a	1673.11	18	None

Project File: Revised 2 BRIDGE TO STA 80.stm | Number of lines: 21 | Run Date: 9/30/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

Hydraulic Grade Line Computations

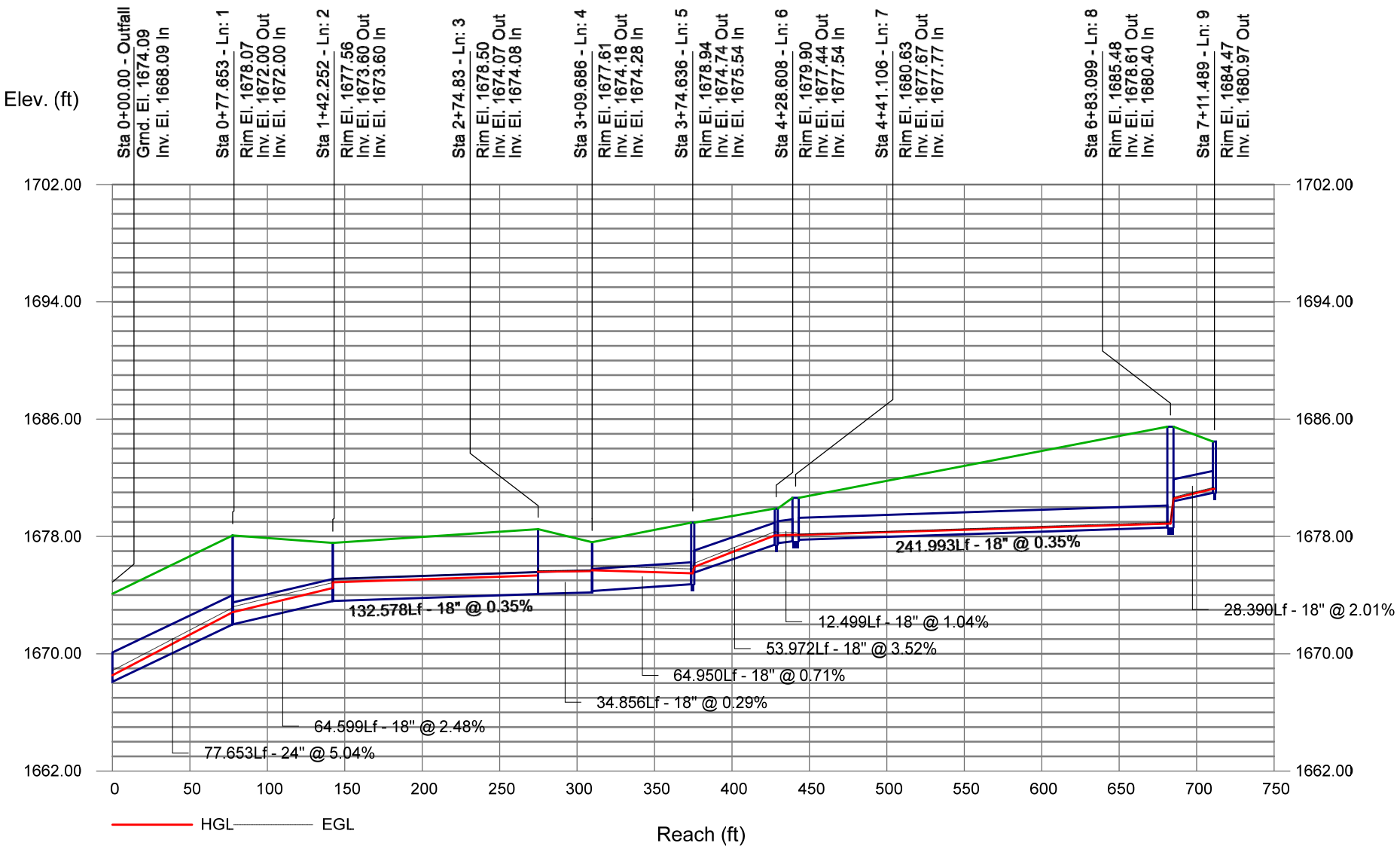
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	5.54	1668.09	1668.54	0.45	0.52	10.59	0.31	1668.85	0.000	77.653	1672.00	1672.83	0.83**	1.23	4.49	0.31	1673.14	0.000	0.000	n/a	0.94	0.30
2	18	5.28	1672.00	1672.83	0.83	1.00	5.27	0.37	1673.20	0.000	64.599	1673.60	1674.49	0.88**	1.08	4.87	0.37	1674.85	0.000	0.000	n/a	1.00	0.37
3	18	3.80	1673.60	1674.87	0.00	0.00	4.03	0.00	1674.87	0.000	132.578	1674.07	1675.34	0.00**	0.00	4.03	0.00	1675.34	0.000	0.000	0.000	1.00	n/a
4	18	2.31	1674.08	1675.59	0.00	0.00	2.21	0.00	1675.59	0.000	34.856	1674.18	1675.64	0.00**	0.00	2.22	0.00	1675.64	0.000	0.000	0.000	0.77	n/a
5	18	2.26	1674.28	1675.70	0.00	0.00	2.23	0.00	1675.70	0.000	64.950	1674.74	1675.49	0.00**	0.00	4.36	0.00	1675.49	0.000	0.000	0.000	1.00	n/a
6	18	1.47	1675.54	1675.93	0.00	0.00	7.77	0.00	1675.93	0.000	53.972	1677.44	1678.07	0.00**	0.00	4.01	0.00	1678.07	0.000	0.000	0.000	1.00	n/a
7	18	0.82	1677.54	1678.07	0.00	0.00	2.48	0.00	1678.07	0.000	12.499	1677.67	1678.11	0.00**	0.00	3.21	0.00	1678.11	0.000	0.000	0.000	1.00	n/a
8	18	0.46	1677.77	1678.11	0.00	0.00	1.72	0.00	1678.11	0.000	241.993	1678.61	1678.88	0.00**	0.00	2.45	0.00	1678.88	0.000	0.000	0.000	1.00	n/a
9	18	0.53	1680.40	1680.59	0.00	0.00	4.19	0.00	1680.59	0.000	28.390	1680.97	1681.24	0.00**	0.00	2.46	0.00	1681.24	0.000	0.000	0.000	1.00	n/a
10	12	0.92	1677.44	1678.07	0.00	0.00	1.90	0.00	1678.07	0.000	28.642	1677.73	1678.15	0.00**	0.00	3.19	0.00	1678.15	0.000	0.000	0.000	0.69	n/a
11	12	0.77	1677.73	1678.50	0.00	0.00	1.28	0.00	1678.50	0.000	81.000	1677.78	1678.55	0.00**	0.00	1.28	0.00	1678.55	0.000	0.000	0.000	1.00	n/a
12	12	0.30	1677.78	1678.58	0.00	0.00	0.45	0.00	1678.58	0.000	31.000	1678.09	1678.32	0.00**	0.00	2.26	0.00	1678.32	0.000	0.000	0.000	1.00	n/a
13	18	3.15	1674.08	1675.59	0.00	0.00	1.84	0.00	1675.59	0.000	42.109	1674.50	1675.61	0.00**	0.00	2.33	0.00	1675.61	0.000	0.000	0.000	1.00	n/a
14	12	1.66	1674.74	1675.49	0.00	0.00	2.63	0.00	1675.49	0.000	22.472	1675.07	1675.62	0.00**	0.00	3.78	0.00	1675.62	0.000	0.000	0.000	1.00	n/a
15	15	0.17	1674.28	1675.70	0.00	0.00	0.14	0.00	1675.70	0.000	9.491	1673.88	1675.70	0.00**	0.00	0.14	0.00	1675.70	0.000	0.000	0.000	1.00	n/a
16	18	1.28	1673.68	1674.68	0.00	0.00	0.26	0.00	1674.68	0.000	23.334	1673.77	1674.68	0.00**	0.00	0.29	0.00	1674.68	0.000	0.000	0.000	0.15	n/a
17	18	0.46	1673.73	1674.68	0.00	0.00	0.28	0.00	1674.68	0.000	19.512	1673.93	1674.14	0.00**	0.00	2.17	0.00	1674.14	0.000	0.000	0.000	1.00	n/a
18	18	1.61	1673.60	1674.68	0.00	0.00	0.50	0.00	1674.68	0.000	25.960	1673.68	1674.68	0.00**	0.00	0.55	0.00	1674.68	0.000	0.000	0.000	1.00	n/a
19	18	0.40	1673.68	1674.69	0.00	0.00	0.58	0.00	1674.69	0.000	19.440	1673.82	1674.69	0.00**	0.00	0.62	0.00	1674.69	0.000	0.000	0.000	1.00	n/a
20	18	0.60	1672.07	1673.11	0.00	0.00	0.82	0.00	1673.11	0.000	23.169	1672.42	1672.81	0.00**	0.00	2.97	0.00	1672.81	0.000	0.000	0.000	1.00	n/a
21	18	1.23	1673.68	1672.88	0.00	0.00	2.51	0.00	1672.88	0.000	24.620	1673.75	1673.01	0.00**	0.00	2.50	0.00	1673.01	0.000	0.000	0.000	1.00	n/a

Project File: Revised 2 BRIDGE TO STA 80.stm | Number of lines: 21 | Run Date: 9/30/2025

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

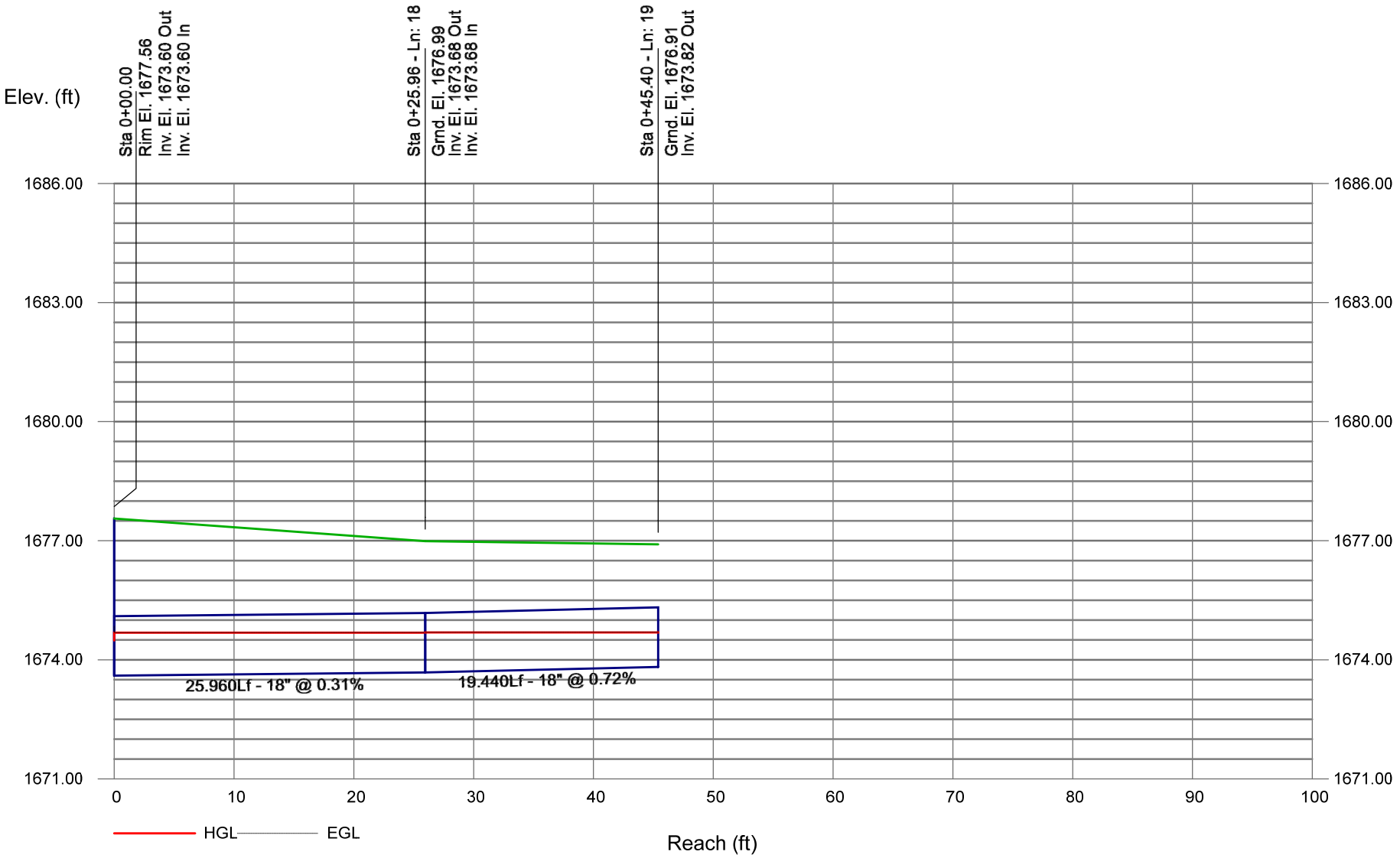
Storm Sewer Profile

Proj. file: Revised 2 BRIDGE TO STA 80.stm



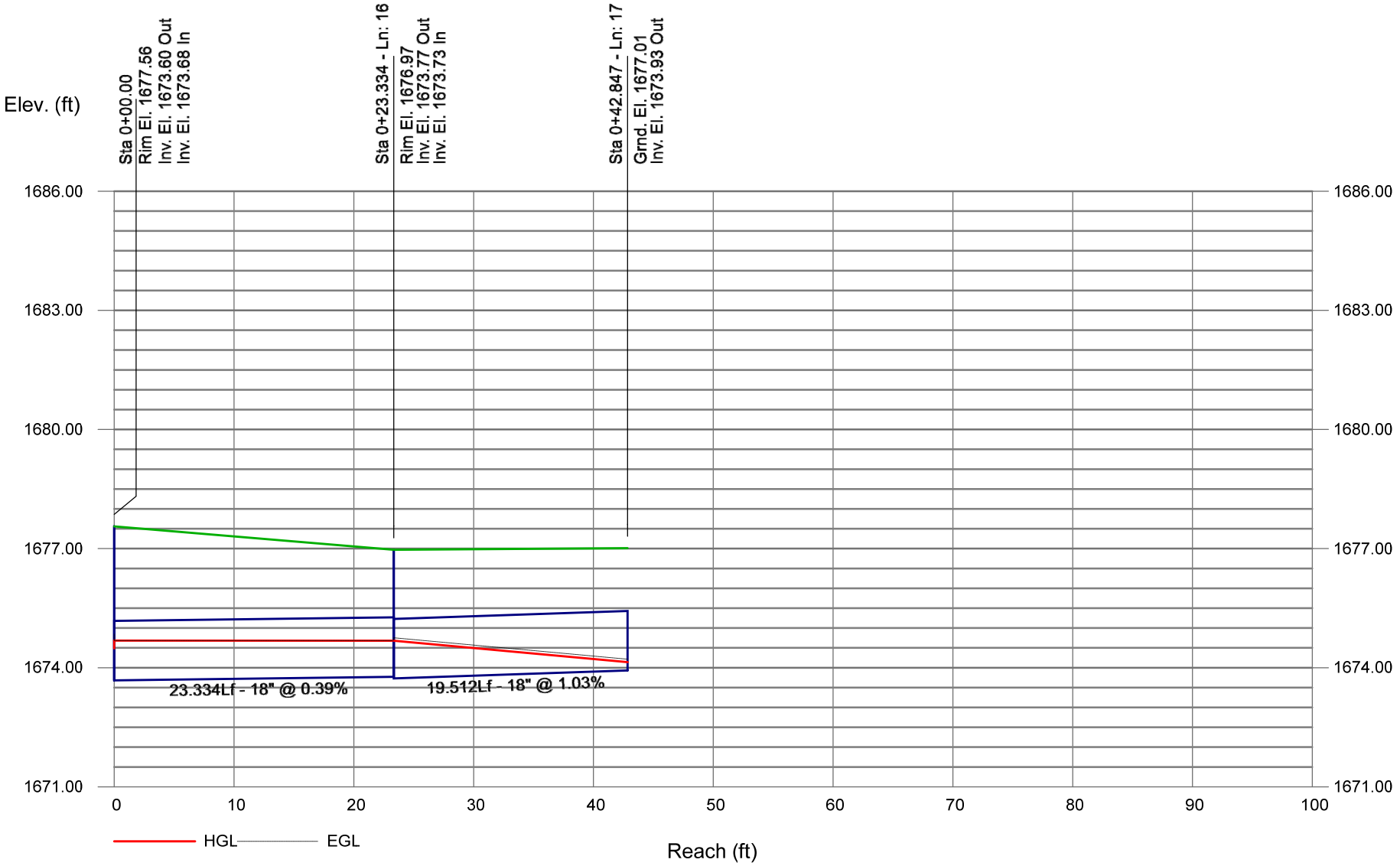
Storm Sewer Profile

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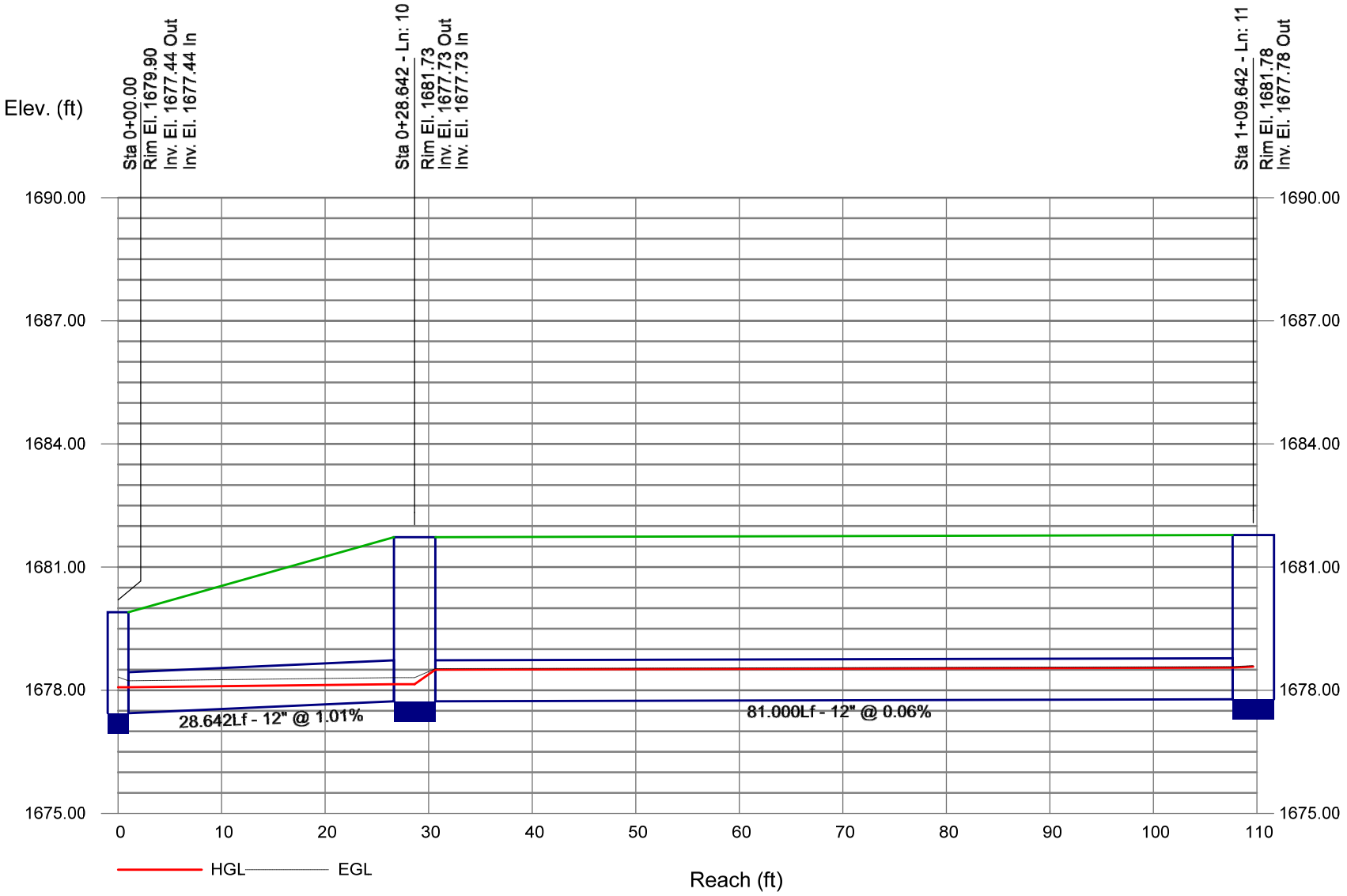
Storm Sewer Profile

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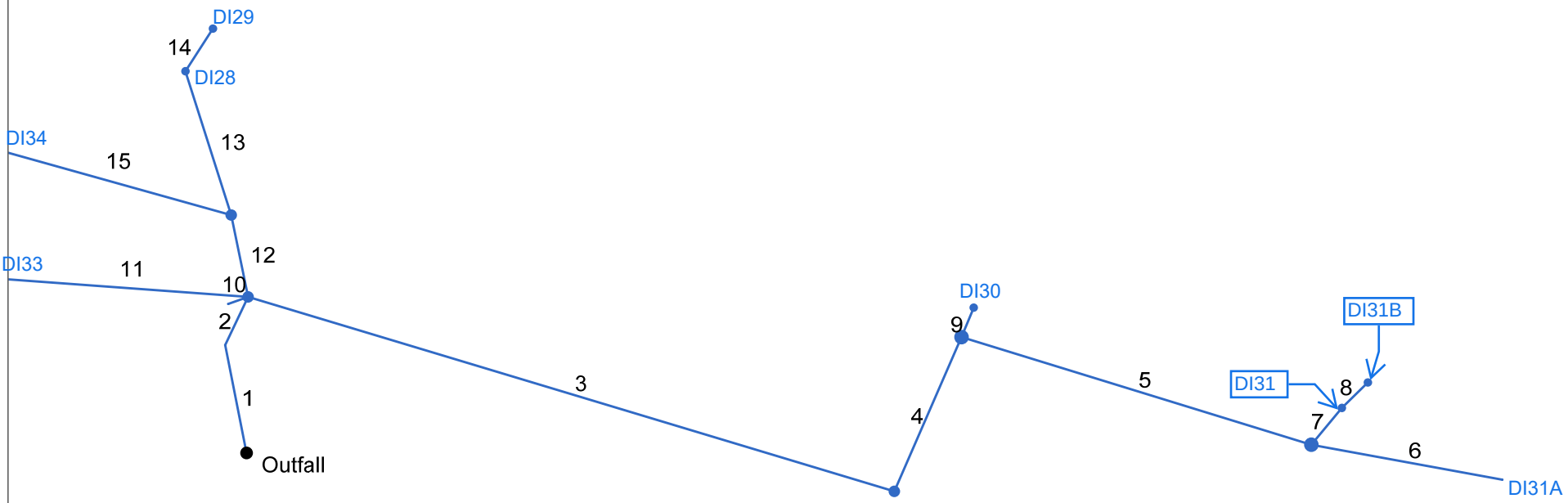


Storm Sewer Profile

Proj. file: Revised 2 BRIDGE TO STA 80.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2025-0818 Test end of project.stm	Number of lines: 15	Date: 8/20/2025

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	44.600	-99.146	None	0.00	0.00	0.00	0.0	1677.50	11.30	1682.54	18	Cir	0.013	0.55	1684.34	(E)SD Pipe - (59)
2	1	20.938	29.548	MH	0.00	0.00	0.00	0.0	1682.54	10.84	1684.81	18	Cir	0.013	1.00	1694.24	(E)SD Pipe - (59)
3	2	226.331	90.114	MH	0.00	0.00	0.00	0.0	1684.86	3.78	1693.41	24	Cir	0.013	1.00	1701.70	(E)SD Pipe - (58)
4	3	66.554	-91.455	MH	0.00	0.00	0.00	0.0	1693.47	5.23	1696.95	24	Cir	0.013	1.00	1702.03	(E)SD Pipe - (57)
5	4	122.602	91.936	MH	0.00	0.00	0.00	0.0	1696.40	5.03	1702.57	24	Cir	0.012	0.98	1707.00	SD Pipe - (2)
6	5	64.297	-8.261	None	4.59	0.00	0.00	0.0	1703.07	2.46	1704.65	18	Cir	0.012	1.00	0.00	SD Pipe - (43)
7	5	18.008	-77.660	MH	0.13	0.00	0.00	0.0	1702.57	2.00	1702.93	12	Cir	0.012	0.15	1706.73	SD Pipe - (1)
8	7	13.455	6.156	MH	6.08	0.00	0.00	0.0	1702.93	2.01	1703.20	12	Cir	0.012	1.00	1706.83	SD Pipe - (60)
9	4	12.698	-0.065	MH	0.87	0.00	0.00	0.0	1696.40	1.97	1696.65	18	Cir	0.012	1.00	1701.43	SD Pipe - (3)
10	2	6.910	-135.148	None	0.01	0.00	0.00	0.0	1689.83	0.43	1689.86	12	Cir	0.012	1.00	0.00	(E)SD Pipe - (63)
11	2	85.110	-105.181	MH	0.09	0.00	0.00	0.0	1687.04	0.74	1687.67	12	Cir	0.013	1.00	1688.92	(E)SD Pipe - (62)
12	2	33.670	-29.048	MH	0.00	0.00	0.00	0.0	1684.66	-0.06	1684.64	15	Cir	0.013	0.90	1692.82	(E)SD Pipe - (61)
13	12	60.629	-5.893	MH	0.83	0.00	0.00	0.0	1684.64	1.35	1685.46	18	Cir	0.012	0.72	1691.08	SD Pipe - (5)
14	13	19.585	42.315	MH	2.30	0.00	0.00	0.0	1686.56	1.99	1686.95	18	Cir	0.012	1.00	1690.88	SD Pipe - (4)
15	12	90.721	-62.207	MH	1.86	0.00	0.00	0.0	1684.54	1.03	1685.47	15	Cir	0.013	1.00	1689.37	(E)SD Pipe - (60)

Project File: 2025-0818 Test end of project.stm

Number of lines: 15

Date: 9/2/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	(E)SD Pipe - (59) (1)	16.76	18	Cir	44.600	1677.50	1682.54	11.301	1678.23	1683.98	n/a	1683.98	End	None
2	(E)SD Pipe - (59)	16.76	18	Cir	20.938	1682.54	1684.81	10.842	1683.98	1686.25	n/a	1686.25	1	Manhole
3	(E)SD Pipe - (58)	11.67	24	Cir	226.331	1684.86	1693.41	3.778	1686.23	1694.66	n/a	1694.66	2	Manhole
4	(E)SD Pipe - (57)	11.67	24	Cir	66.554	1693.47	1696.95	5.229	1694.66	1698.20	n/a	1698.20	3	Manhole
5	SD Pipe - (2)	10.80	24	Cir	122.602	1696.40	1702.57	5.032	1698.20	1703.79	n/a	1703.79	4	Manhole
6	SD Pipe - (43)	4.59	18	Cir	64.297	1703.07	1704.65	2.457	1703.79	1705.55	n/a	1705.55	5	None
7	SD Pipe - (1)	6.21	12	Cir	18.008	1702.57	1702.93	2.000	1703.79*	1704.22*	n/a	1704.35	5	Manhole
8	SD Pipe - (60)	6.08	12	Cir	13.455	1702.93	1703.20	2.006	1704.35*	1704.66*	n/a	1705.53	7	Manhole
9	SD Pipe - (3)	0.87	18	Cir	12.698	1696.40	1696.65	1.969	1698.20*	1698.20*	n/a	1698.20	4	Manhole
10	(E)SD Pipe - (63)	0.01	12	Cir	6.910	1689.83	1689.86	0.435	1689.88	1689.91	n/a	1689.92	2	None
11	(E)SD Pipe - (62)	0.09	12	Cir	85.110	1687.04	1687.67	0.740	1687.15	1687.78	n/a	1687.78	2	Manhole
12	(E)SD Pipe - (61)	4.99	15	Cir	33.670	1684.66	1684.64	-0.059	1686.23*	1686.35*	n/a	1686.49	2	Manhole
13	SD Pipe - (5)	3.13	18	Cir	60.629	1684.64	1685.46	1.352	1686.49	1686.49	n/a	1686.53	12	Manhole
14	SD Pipe - (4)	2.30	18	Cir	19.585	1686.56	1686.95	1.991	1686.90	1687.45	n/a	1687.45	13	Manhole
15	(E)SD Pipe - (60)	1.86	15	Cir	90.721	1684.54	1685.47	1.025	1686.49	1686.52	n/a	1686.55	12	Manhole

Project File: 2025-0818 Test end of project.stm | Number of lines: 15 | Run Date: 9/2/2025

NOTES: Known Qs only ; *Surcharged (HGL above crown).

Hydraulic Grade Line Computations

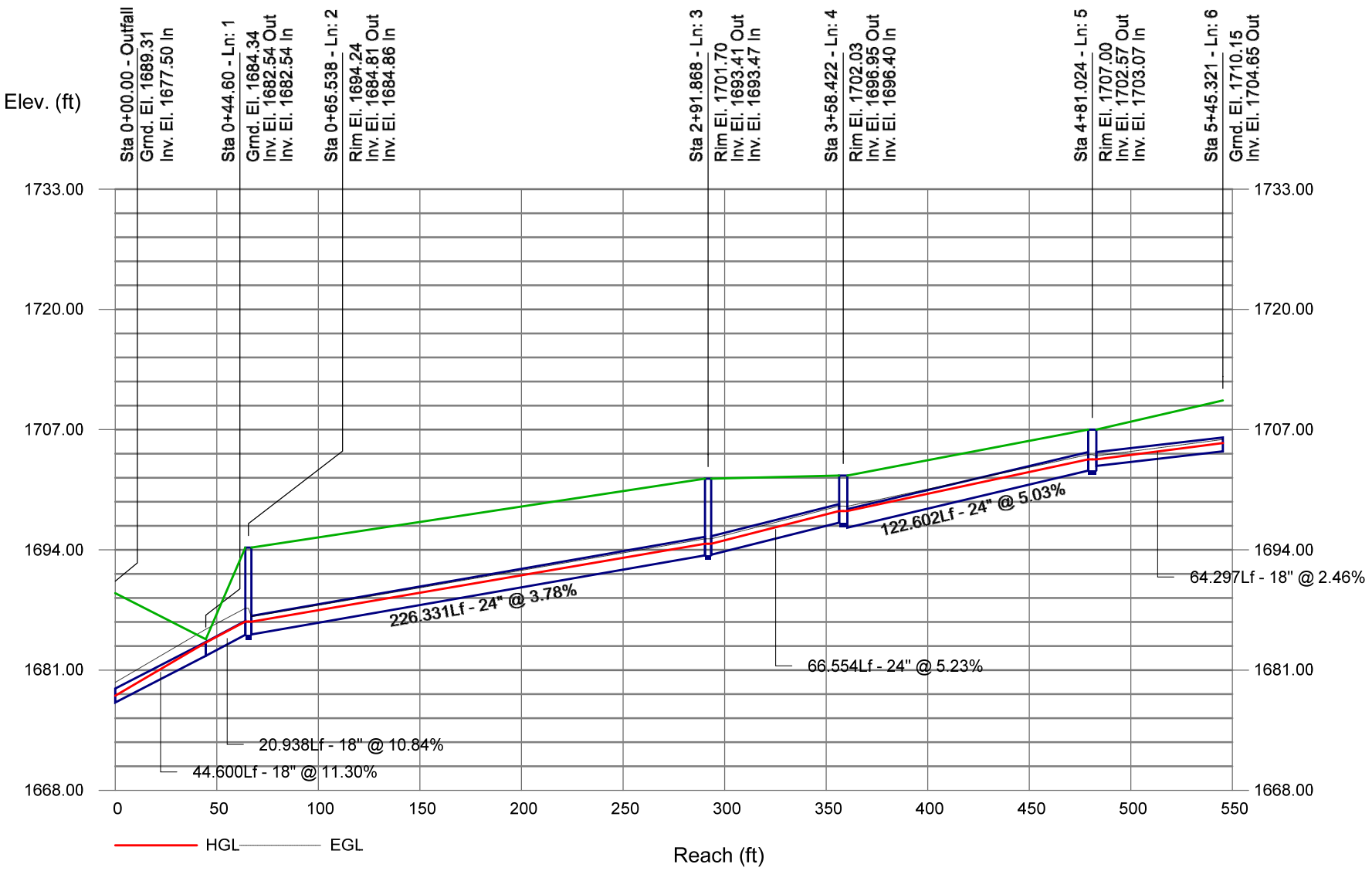
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	16.76	1677.50	1678.23	0.73	0.85	19.72	1.44	1679.67	0.000	44.600	1682.54	1683.98	1.44**	1.74	9.63	1.44	1685.42	0.000	0.000	n/a	0.55	n/a
2	18	16.76	1682.54	1683.98	1.44*	1.74	9.63	1.44	1685.42	0.000	20.938	1684.81	1686.25	1.44**	1.74	9.63	1.44	1687.69	0.000	0.000	n/a	1.00	n/a
3	24	11.67	1684.86	1686.23	0.00	0.00	5.26	0.00	1686.23	0.000	226.331	1693.41	1694.66	0.00**	0.00	5.87	0.00	1694.66	0.000	0.000	0.000	1.00	n/a
4	24	11.67	1693.47	1694.66	0.00	0.00	6.22	0.00	1694.66	0.000	66.554	1696.95	1698.20	0.00**	0.00	5.87	0.00	1698.20	0.000	0.000	0.000	1.00	n/a
5	24	10.80	1696.40	1698.20	0.00	0.00	3.84	0.00	1698.20	0.000	122.602	1702.57	1703.79	0.00**	0.00	5.74	0.00	1703.79	0.000	0.000	0.000	0.98	n/a
6	18	4.59	1703.07	1703.79	0.00	0.00	6.58	0.00	1703.79	0.000	64.297	1704.65	1705.55	0.00**	0.00	4.93	0.00	1705.55	0.000	0.000	0.000	1.00	n/a
7	12	6.21	1702.57	1703.79	0.00	0.00	7.60	0.00	1703.79	0.000	18.008	1702.93	1704.22	0.00**	0.00	7.60	0.00	1704.22	0.000	0.000	0.000	0.15	n/a
8	12	6.08	1702.93	1704.35	0.00	0.00	7.48	0.00	1704.35	0.000	13.455	1703.20	1704.66	0.00**	0.00	7.47	0.00	1704.66	0.000	0.000	0.000	1.00	n/a
9	18	0.87	1696.40	1698.20	0.00	0.00	0.37	0.00	1698.20	0.000	12.698	1696.65	1698.20	0.00**	0.00	0.37	0.00	1698.20	0.000	0.000	0.000	1.00	n/a
10	12	0.01	1689.83	1689.88	0.00	0.00	0.78	0.00	1689.88	0.000	6.910	1689.86	1689.91	0.00**	0.00	0.78	0.00	1689.91	0.000	0.000	0.000	1.00	n/a
11	12	0.09	1687.04	1687.15	0.00	0.00	1.61	0.00	1687.15	0.000	85.110	1687.67	1687.78	0.00**	0.00	1.54	0.00	1687.78	0.000	0.000	0.000	1.00	n/a
12	15	4.99	1684.66	1686.23	0.00	0.00	3.10	0.00	1686.23	0.000	33.670	1684.64	1686.35	0.00**	0.00	3.10	0.00	1686.35	0.000	0.000	0.000	0.90	n/a
13	18	3.13	1684.64	1686.49	0.00	0.00	1.35	0.00	1686.49	0.000	60.629	1685.46	1686.49	0.00**	0.00	1.84	0.00	1686.49	0.000	0.000	0.000	0.72	n/a
14	18	2.30	1686.56	1686.90	0.00	0.00	5.95	0.00	1686.90	0.000	19.585	1686.95	1687.45	0.00**	0.00	3.42	0.00	1687.45	0.000	0.000	0.000	1.00	n/a
15	15	1.86	1684.54	1686.49	0.00	0.00	1.16	0.00	1686.49	0.000	90.721	1685.47	1686.52	0.00**	0.00	1.29	0.00	1686.52	0.000	0.000	0.000	1.00	n/a

Project File: 2025-0818 Test end of project.stm | Number of lines: 15 | Run Date: 9/2/2025

Notes: * depth assumed; ** Critical depth. ; c = cir e = ellip b = box

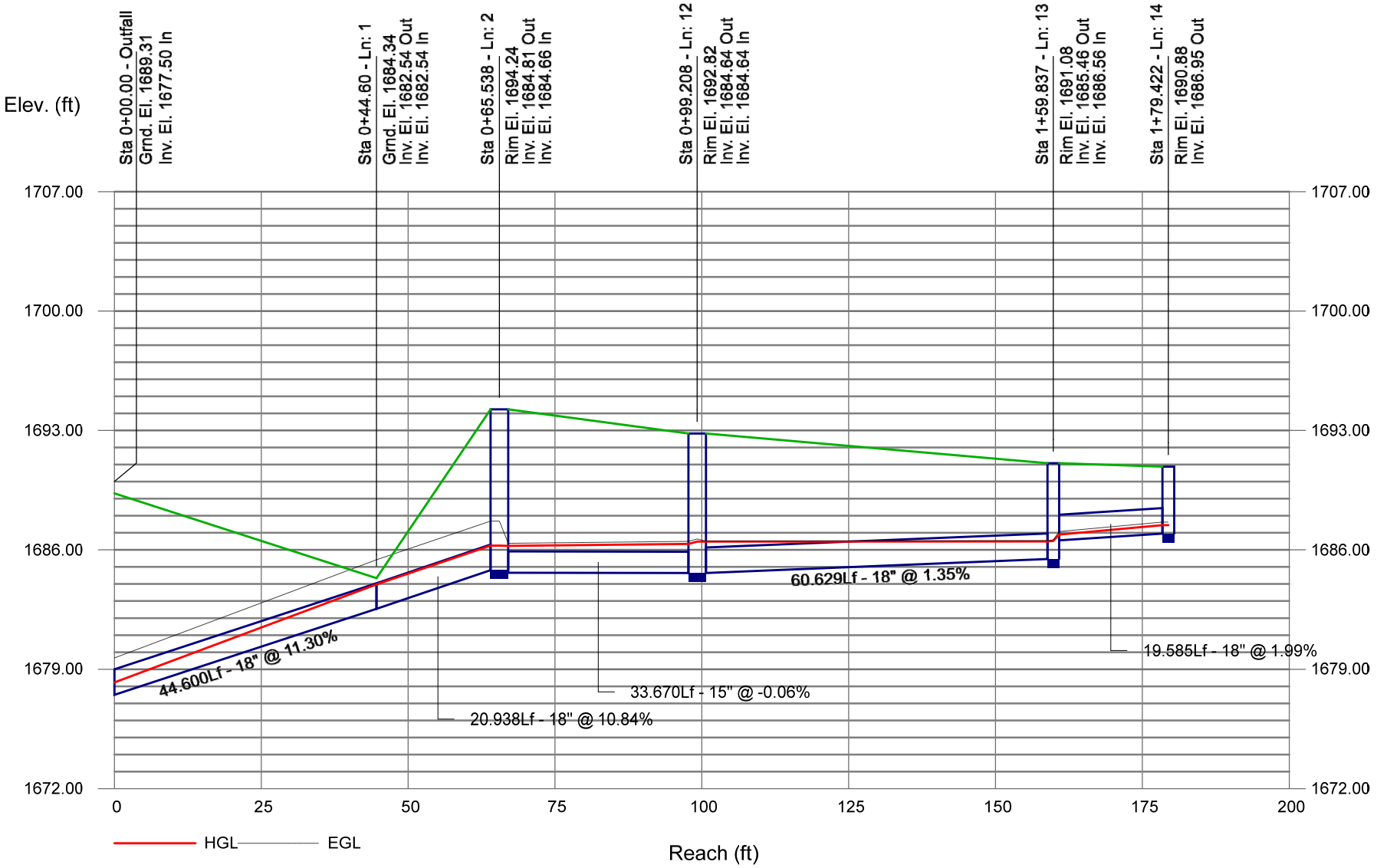
Storm Sewer Profile

Proj. file: 2025-0818 Test end of project.stm



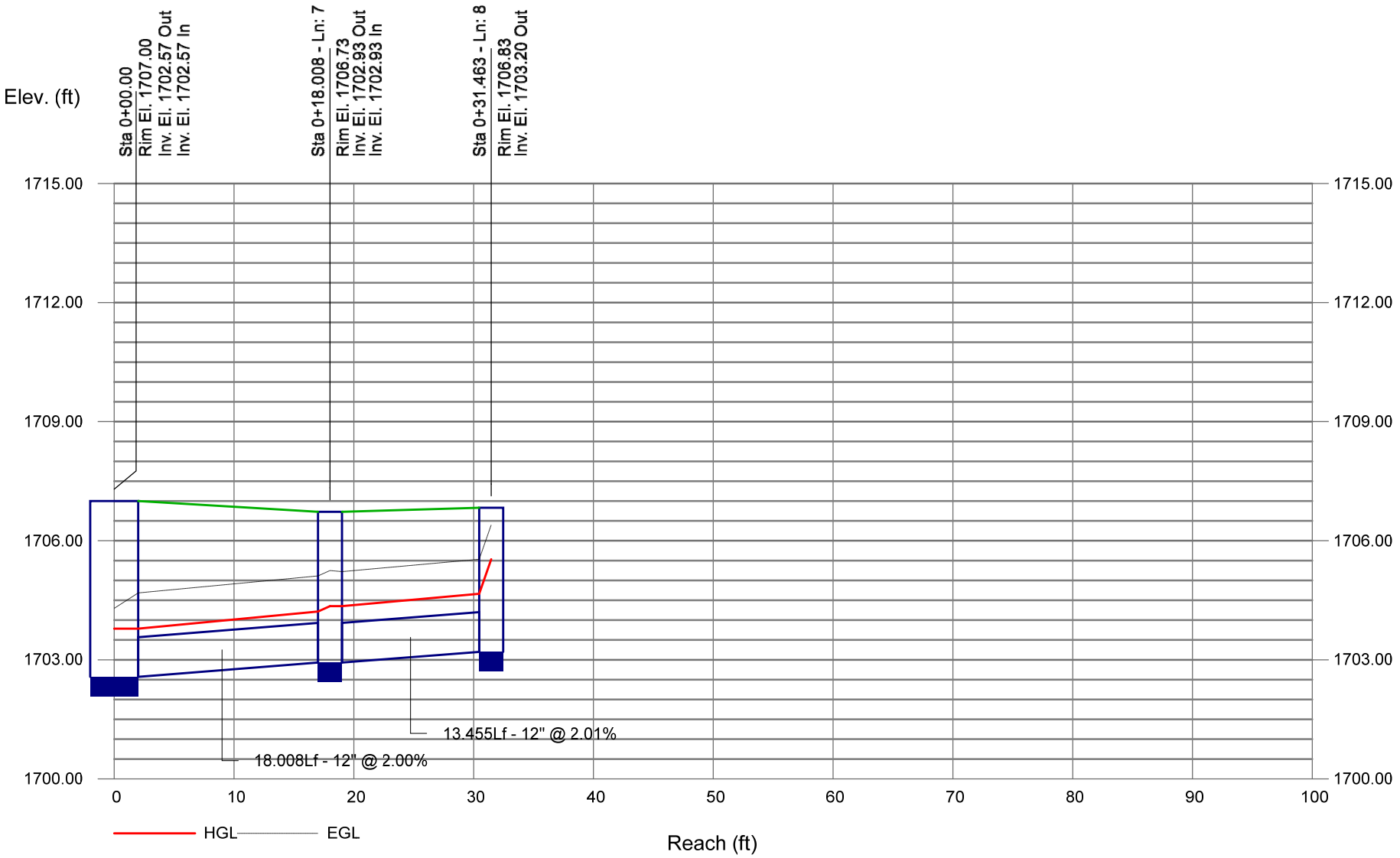
Storm Sewer Profile

Proj. file: 2025-0818 Test end of project.stm



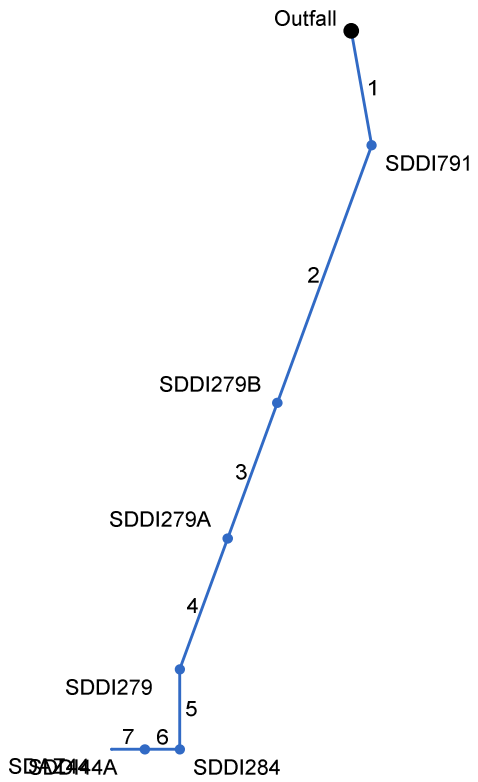
Storm Sewer Profile

Proj. file: 2025-0818 Test end of project.stm



Hydraulic Grade line Calculations (Existing)

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 44 to 45.stm	Number of lines: 7	Date: 7/1/2024

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		5.45	24	Cir	62.600	1668.03	1674.04	9.601	1668.41	1674.86	n/a	1674.86	End	DropGrate
2		5.80	18	Cir	147.700	1674.04	1687.98	9.438	1674.86	1688.91	n/a	1688.91	1	Manhole
3		5.94	15	Cir	77.700	1687.98	1690.07	2.690	1688.91	1691.06	n/a	1691.06	2	DropGrate
4		5.98	15	Cir	75.000	1690.07	1699.14	12.093	1691.06	1700.13	n/a	1700.13	3	DropGrate
5		5.33	15	Cir	43.100	1699.14	1701.07	4.478	1700.13	1702.01	n/a	1702.01 j	4	DropGrate
6		5.36	12	Cir	18.700	1701.07	1701.09	0.107	1702.07*	1702.49*	0.36	1702.86	5	DropGrate
7		2.82	12	Cir	17.900	1701.09	1701.77	3.799	1702.86*	1702.97*	0.20	1703.17	6	None

Project File: STA 44 to 45.stm

Number of lines: 7

Run Date: 7/1/2024

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	62.600	0.00	3.70	0.00	0.00	1.79	0.0	6.6	3.0	5.45	70.08	8.86	24	9.60	1668.03	1674.04	1668.41	1674.86	1670.03	1680.74	
2	1	147.700	0.00	3.70	0.00	0.00	1.79	0.0	5.8	3.2	5.80	32.26	5.44	18	9.44	1674.04	1687.98	1674.86	1688.91	1680.74	1697.70	
3	2	77.700	0.03	3.70	1.00	0.03	1.79	5.0	5.6	3.3	5.94	10.59	5.90	15	2.69	1687.98	1690.07	1688.91	1691.06	1697.70	1701.35	
4	3	75.000	0.45	3.67	0.48	0.22	1.76	5.0	5.3	3.4	5.98	22.46	5.76	15	12.09	1690.07	1699.14	1691.06	1700.13	1701.35	1701.49	
5	4	43.100	0.00	3.22	0.00	0.00	1.55	0.0	5.1	3.4	5.33	13.66	5.27	15	4.48	1699.14	1701.07	1700.13	1702.01	1701.49	1704.32	
6	5	18.700	1.54	3.22	0.48	0.74	1.55	5.0	5.1	3.5	5.36	1.17	6.82	12	0.11	1701.07	1701.09	1702.07	1702.49	1704.32	1704.29	
7	6	17.900	1.68	1.68	0.48	0.81	0.81	5.0	5.0	3.5	2.82	6.94	3.59	12	3.80	1701.09	1701.77	1702.86	1702.97	1704.29	1702.77	

Project File: STA 44 to 45.stm

Number of lines: 7

Run Date: 7/1/2024

NOTES:Intensity = 7.98 / (Inlet time + 0.10) ^ 0.51; Return period =Yrs. 10 ; c = cir e = ellip b = box

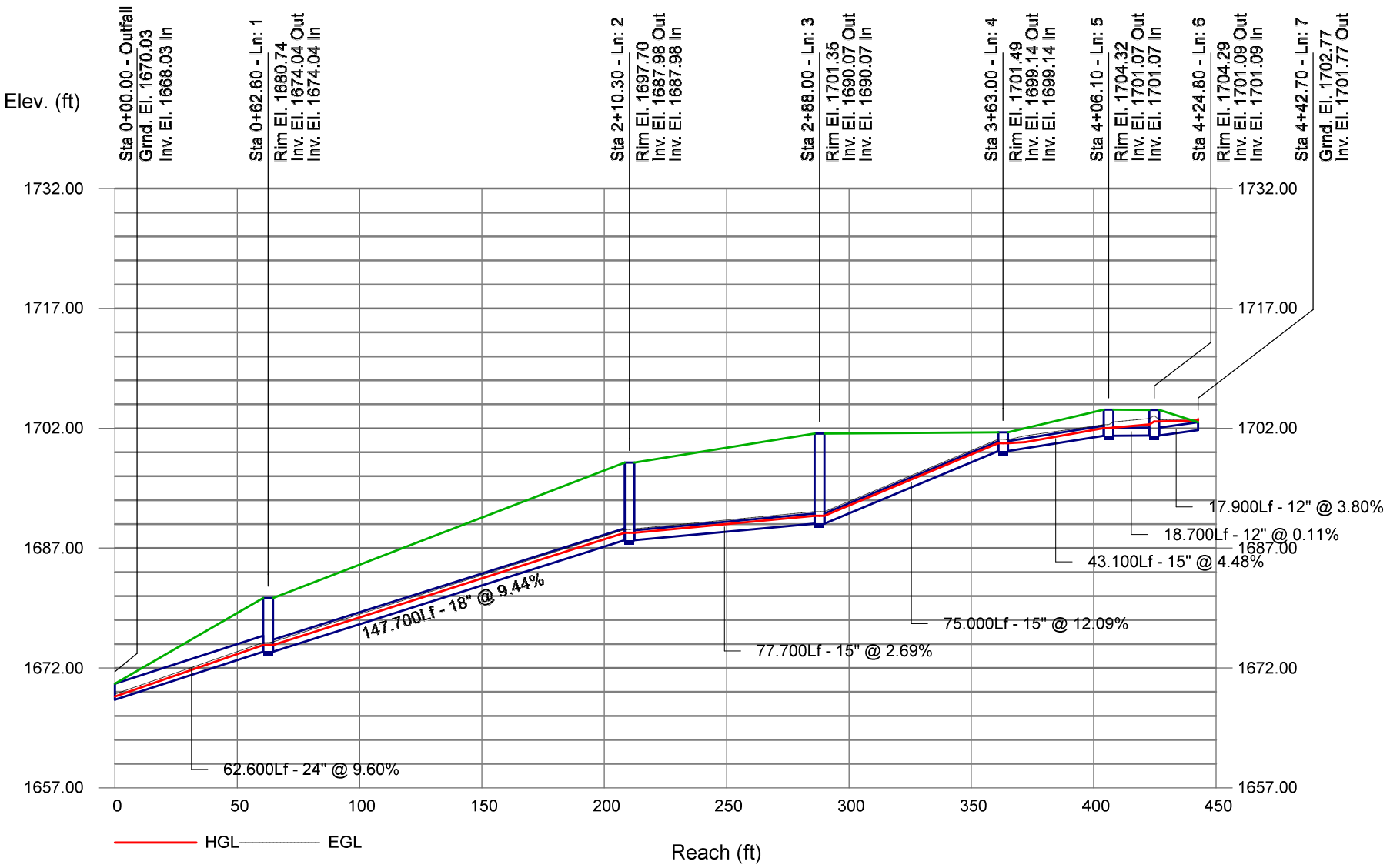
Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		0.00
2		User																		0.00
3		User																		5.00
4		User																		5.00
5		User																		0.00
6		User																		5.00
7		User																		5.00

Project File: STA 44 to 45.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 7 | Date: 7/1/2024

Storm Sewer Profile

Proj. file: STA 44 to 45.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 46 to 57.stm	Number of lines: 5	Date: 7/1/2024

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		7.24	18	Cir	49.400	1673.56	1675.39	3.704	1674.61	1676.43	n/a	1676.43 j	End	DropGrate
2		6.23	12	Cir	320.500	1675.39	1690.10	4.590	1676.43	1691.06	n/a	1691.06 j	1	Manhole
3		4.09	12	Cir	77.700	1690.10	1691.93	2.355	1691.06	1692.79	n/a	1692.79 j	2	DropGrate
4		4.15	12	Cir	56.200	1691.93	1695.58	6.494	1692.79	1696.44	0.26	1696.44	3	DropGrate
5		2.33	12	Cir	90.400	1695.58	1695.85	0.299	1696.58*	1696.97*	0.14	1697.11	4	DropGrate

Project File: STA 46 to 57.stm | Number of lines: 5 | Run Date: 7/1/2024

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	49.400	1.00	4.62	0.53	0.53	2.90	5.0	6.6	2.5	7.24	20.21	5.50	18	3.70	1673.56	1675.39	1674.61	1676.43	1675.06	1678.59	
2	1	320.500	1.73	3.62	0.49	0.85	2.37	5.0	5.9	2.6	6.23	7.63	7.99	12	4.59	1675.39	1690.10	1676.43	1691.06	1678.59	1692.74	
3	2	77.700	0.00	1.89	0.00	0.00	1.53	0.0	5.7	2.7	4.09	5.47	5.50	12	2.36	1690.10	1691.93	1691.06	1692.79	1692.74	1695.18	
4	3	56.200	1.07	1.89	0.66	0.71	1.53	5.0	5.5	2.7	4.15	9.08	5.79	12	6.49	1691.93	1695.58	1692.79	1696.44	1695.18	1698.03	
5	4	90.400	0.82	0.82	1.00	0.82	0.82	5.0	5.0	2.8	2.33	1.95	2.97	12	0.30	1695.58	1695.85	1696.58	1696.97	1698.03	1699.45	

Project File: STA 46 to 57.stm

Number of lines: 5

Run Date: 7/1/2024

NOTES:Intensity = 6.25 / (Inlet time + 0.10) ^ 0.48; Return period =Yrs. 10 ; c = cir e = ellip b = box

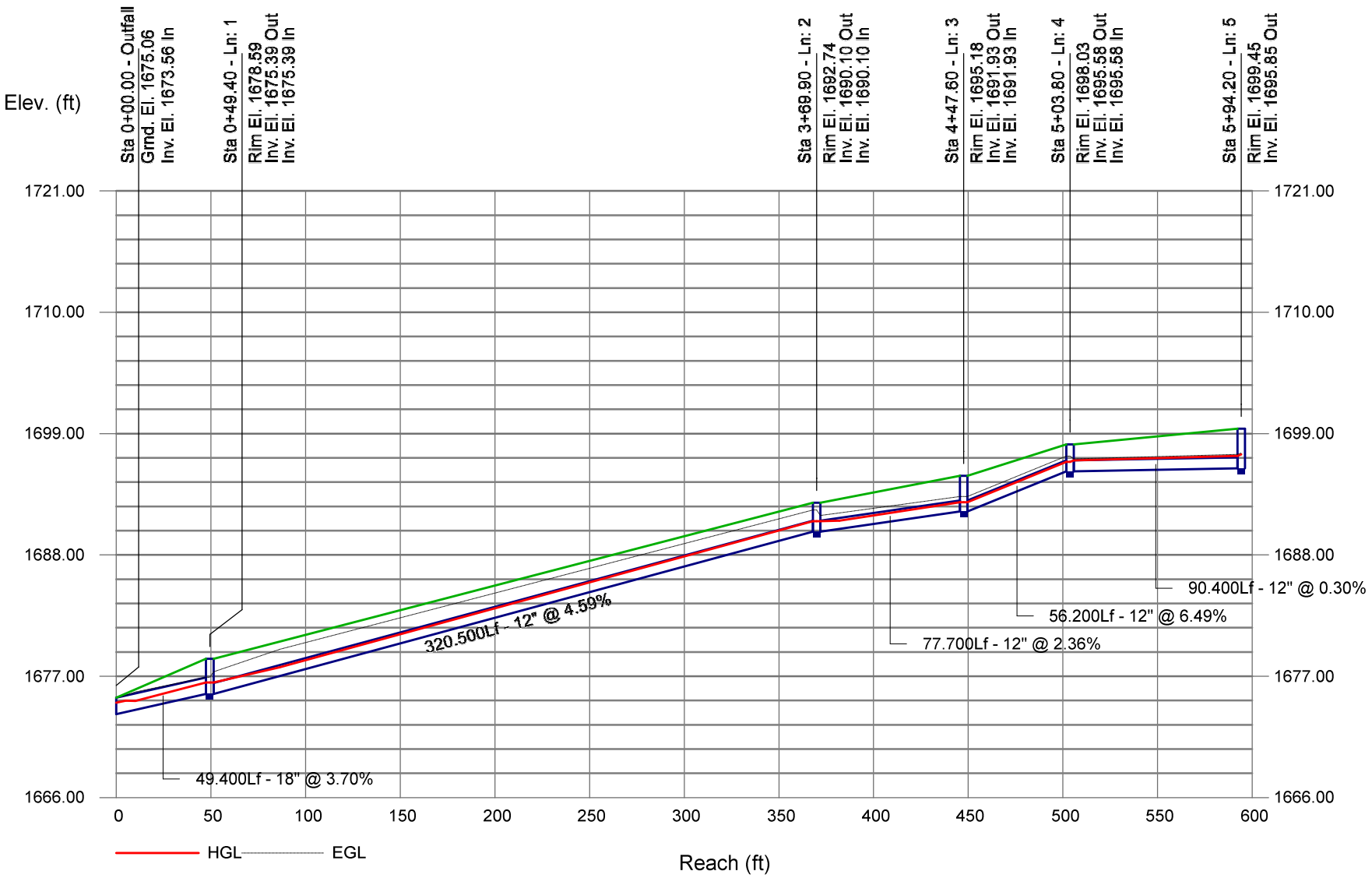
Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		5.00
3		User																		0.00
4		User																		5.00
5		User																		5.00

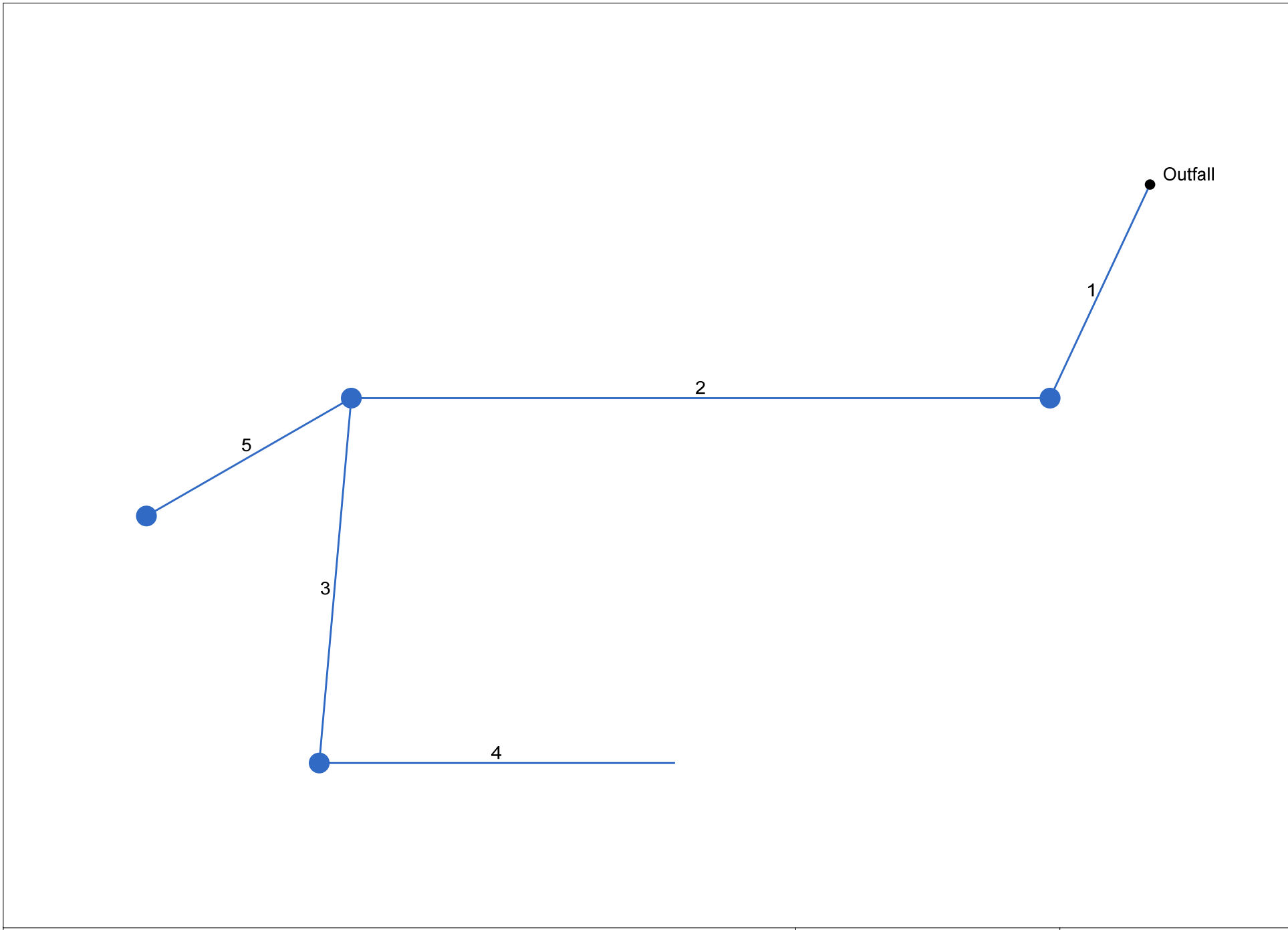
Project File: STA 46 to 57.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 5 | Date: 7/1/2024

Storm Sewer Profile

Proj. file: STA 46 to 57.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 52 to 55.stm	Number of lines: 5	Date: 1/22/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		14.47	24	Cir	50.000	1648.65	1654.33	11.360	1650.04	1655.70	n/a	1655.70 j	End	DropGrate
2		7.23	18	Cir	147.700	1654.33	1659.94	3.798	1655.70	1660.98	n/a	1660.98 j	1	Manhole
3		7.22	15	Cir	77.700	1659.94	1663.74	4.891	1660.98	1664.81	0.97	1664.81	2	DropGrate
4		0.59	12	Cir	75.000	1663.74	1666.15	3.213	1664.81	1666.47	n/a	1666.47 j	3	None
5		0.01	12	Cir	50.000	1659.94	1666.15	12.420	1660.98	1666.19	n/a	1666.19 j	2	DropGrate

Project File: STA 52 to 55.stm | Number of lines: 5 | Run Date: 1/22/2025

NOTES: Known Qs only ; j - Line contains hyd. jump.

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		0.00
2		User																		0.00
3		User																		5.00
4		User																		5.00
5		User																		0.00

Project File: STA 52 to 55.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 5 | Date: 1/22/2025

Hydraulic Grade Line Computations

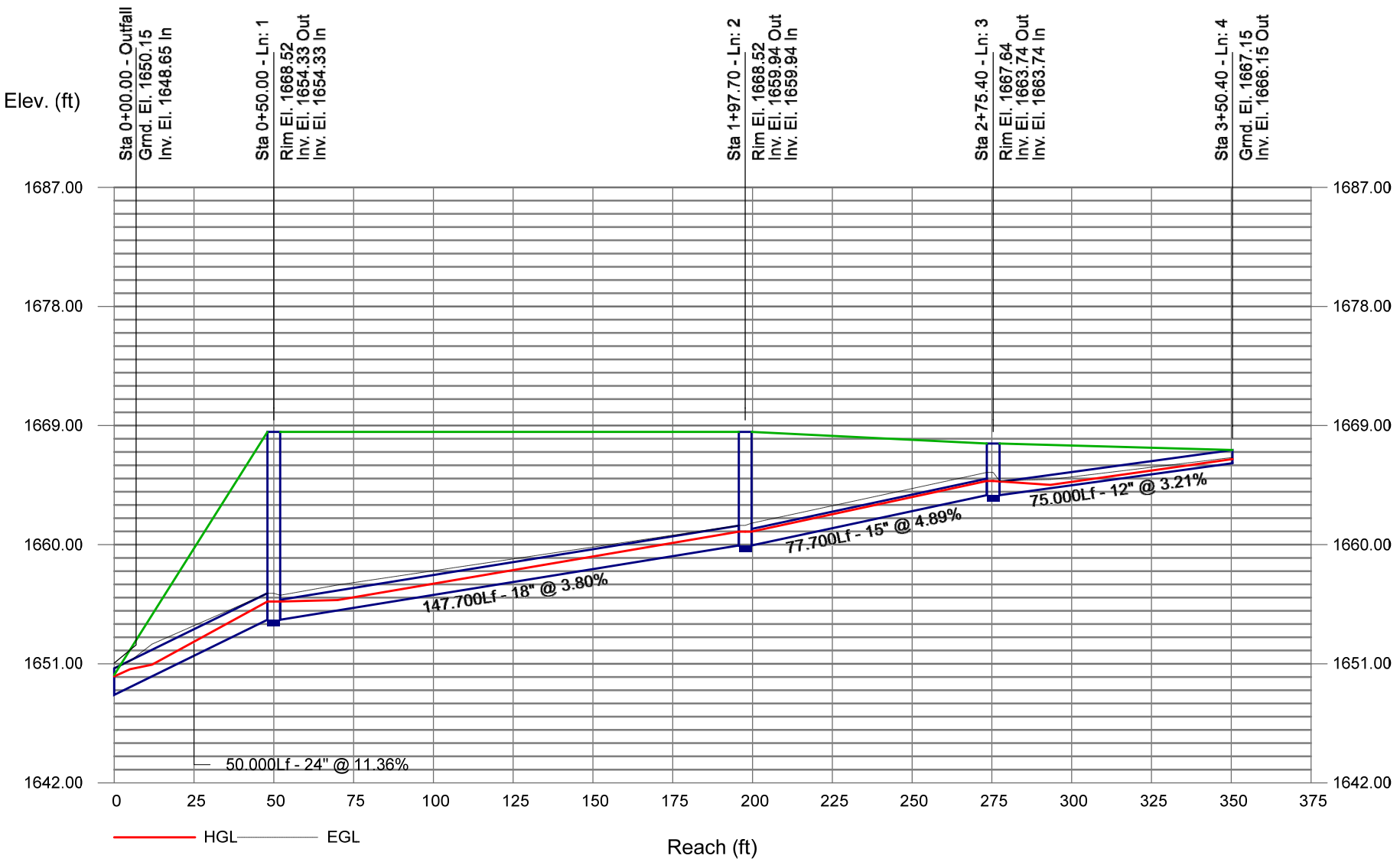
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	14.47	1648.65	1650.04	1.39	2.29	6.21	0.62	1650.66	0.000	50.000	1654.33	1655.70 j	1.37**	2.29	6.31	0.62	1656.32	0.000	0.000	n/a	1.38	0.86
2	18	7.23	1654.33	1655.70	1.37	1.31	4.27	0.47	1656.17	0.000	147.700	1659.94	1660.98 j	1.04**	1.31	5.53	0.47	1661.46	0.000	0.000	n/a	1.00	n/a
3	15	7.22	1659.94	1660.98	1.04	1.09	6.61	0.65	1661.63	0.000	77.700	1663.74	1664.81	1.07**	1.12	6.44	0.65	1665.46	0.000	0.000	n/a	1.50	0.97
4	12	0.59	1663.74	1664.81	1.00	0.22	0.75	0.01	1664.82	0.027	75.000	1666.15	1666.47 j	0.32**	0.22	2.73	0.12	1666.59	0.565	0.296	n/a	1.00	0.12
5	12	0.01	1659.94	1660.98	1.00	0.01	0.01	0.00	1660.98	0.000	50.000	1666.15	1666.19 j	0.04**	0.01	0.93	0.01	1666.20	0.848	0.424	n/a	1.00	n/a

Project File: STA 52 to 55.stm | Number of lines: 5 | Run Date: 1/22/2025

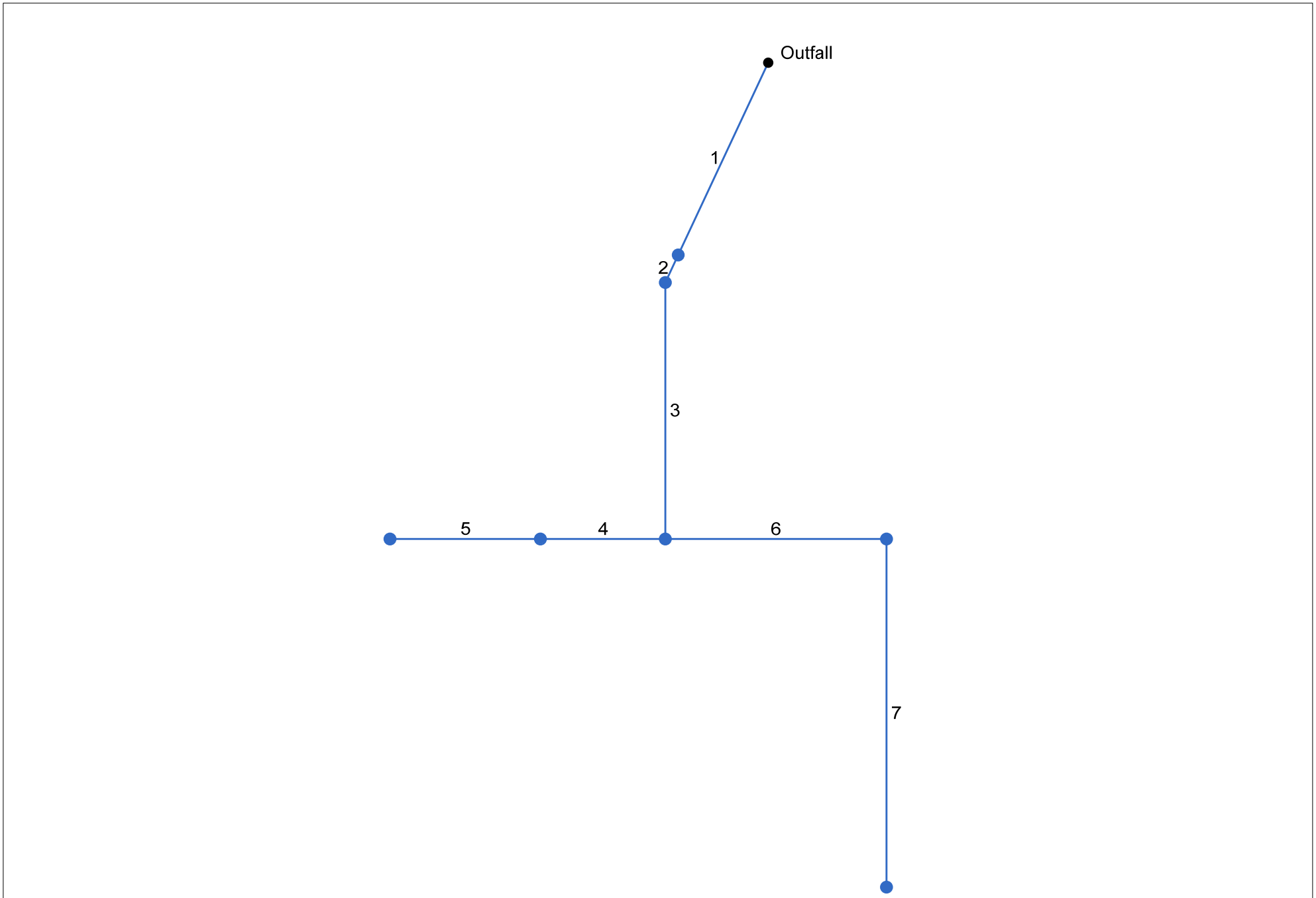
Notes: ; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: STA 52 to 55.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 53 to 56.stm	Number of lines: 7	Date: 1/22/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		5.91	24	Cir	77.500	1648.65	1654.33	7.329	1649.35	1655.19	n/a	1655.19	End	Manhole
2		5.92	24	Cir	11.100	1654.33	1654.33	0.000	1656.33*	1656.34*	0.04	1656.38	1	DropGrate
3		5.78	18	Cir	93.700	1654.33	1655.23	0.961	1656.38	1656.63	0.40	1657.03	2	DropGrate
4		4.04	12	Cir	45.200	1658.33	1661.81	7.699	1658.78	1662.66	n/a	1662.66	3	DropGrate
5		0.68	12	Cir	55.000	1661.81	1662.47	1.200	1662.66	1662.81	n/a	1662.81 j	4	DropGrate
6		3.21	12	Cir	80.500	1658.33	1659.73	1.739	1658.94	1660.50	n/a	1660.50	3	DropGrate
7		3.12	12	Cir	127.200	1659.73	1664.79	3.978	1660.50	1665.55	n/a	1665.55 j	6	DropGrate

Project File: STA 53 to 56.stm | Number of lines: 7 | Run Date: 1/22/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		5.00
3		User																		5.00
4		User																		5.00
5		User																		5.00
6		User																		5.00
7		User																		15.00

Project File: STA 53 to 56.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 7 | Date: 1/22/2025

Hydraulic Grade Line Computations

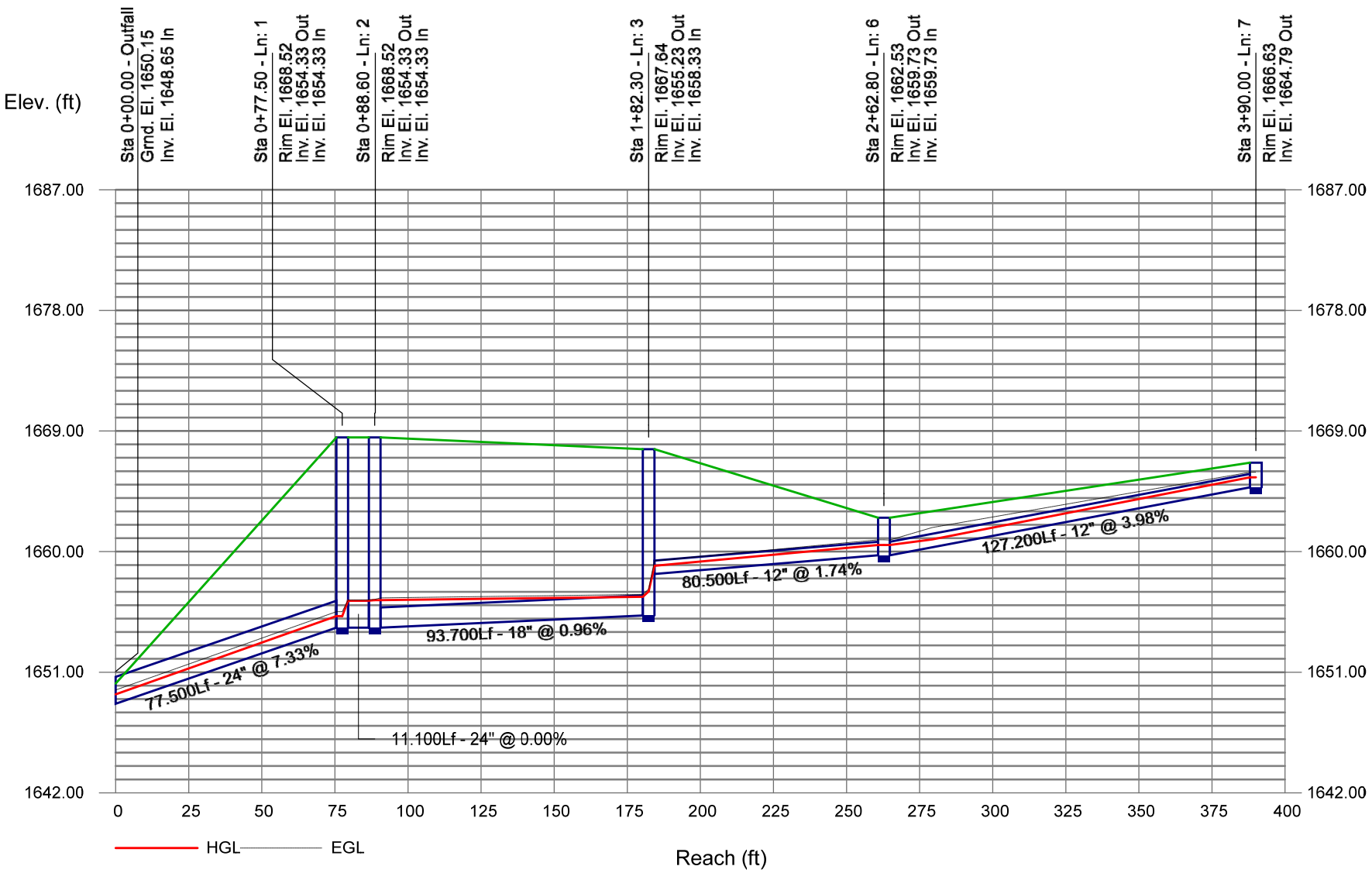
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	5.91	1648.65	1649.35	0.70	0.98	6.03	0.33	1649.68	0.000	77.500	1654.33	1655.19	0.86**	1.29	4.58	0.33	1655.52	0.000	0.000	n/a	0.15	n/a
2	24	5.92	1654.33	1656.33	2.00*	3.14	1.89	0.06	1656.39	0.069	11.100	1654.33	1656.34	2.00	3.14	1.89	0.06	1656.39	0.069	0.069	0.008	0.72	0.04
3	18	5.78	1654.33	1656.38	1.50	1.77	3.27	0.17	1656.54	0.303	93.700	1655.23	1656.63	1.40	1.72	3.36	0.18	1656.81	0.261	0.282	0.264	2.25	0.40
4	12	4.04	1658.33	1658.78	0.45*	0.34	11.94	0.50	1659.28	0.000	45.200	1661.81	1662.66	0.85**	0.71	5.67	0.50	1663.16	0.000	0.000	n/a	0.50	n/a
5	12	0.68	1661.81	1662.66	0.85	0.24	0.96	0.13	1662.79	0.000	55.000	1662.47	1662.81 j	0.34**	0.24	2.85	0.13	1662.94	0.000	0.000	n/a	1.00	0.13
6	12	3.21	1658.33	1658.94	0.61*	0.50	6.43	0.38	1659.32	0.000	80.500	1659.73	1660.50	0.77**	0.65	4.96	0.38	1660.88	0.000	0.000	n/a	1.50	n/a
7	12	3.12	1659.73	1660.50	0.77	0.64	4.83	0.37	1660.87	0.000	127.200	1664.79	1665.55 j	0.76**	0.64	4.89	0.37	1665.92	0.000	0.000	n/a	1.00	0.37

Project File: STA 53 to 56.stm | Number of lines: 7 | Run Date: 1/22/2025

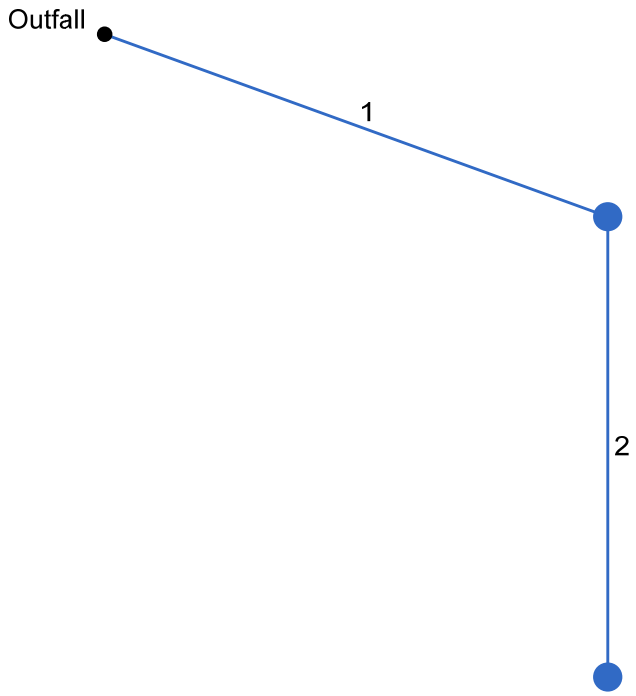
Notes: * Normal depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: STA 53 to 56.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 56 to 57.stm	Number of lines: 2	Date: 1/22/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		18.36	12	Cir	81.200	1648.16	1650.44	2.808	1649.66*	1671.26*	12.15	1683.41	End	DropGrate
2		18.17	15	Cir	70.100	1650.44	1655.62	7.390	1683.41*	1688.97*	3.41	1692.38	1	Manhole

Project File: STA 56 to 57.stm | Number of lines: 2 | Run Date: 1/22/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		15.00

Project File: STA 56 to 57.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 2 | Date: 1/22/2025

Hydraulic Grade Line Computations

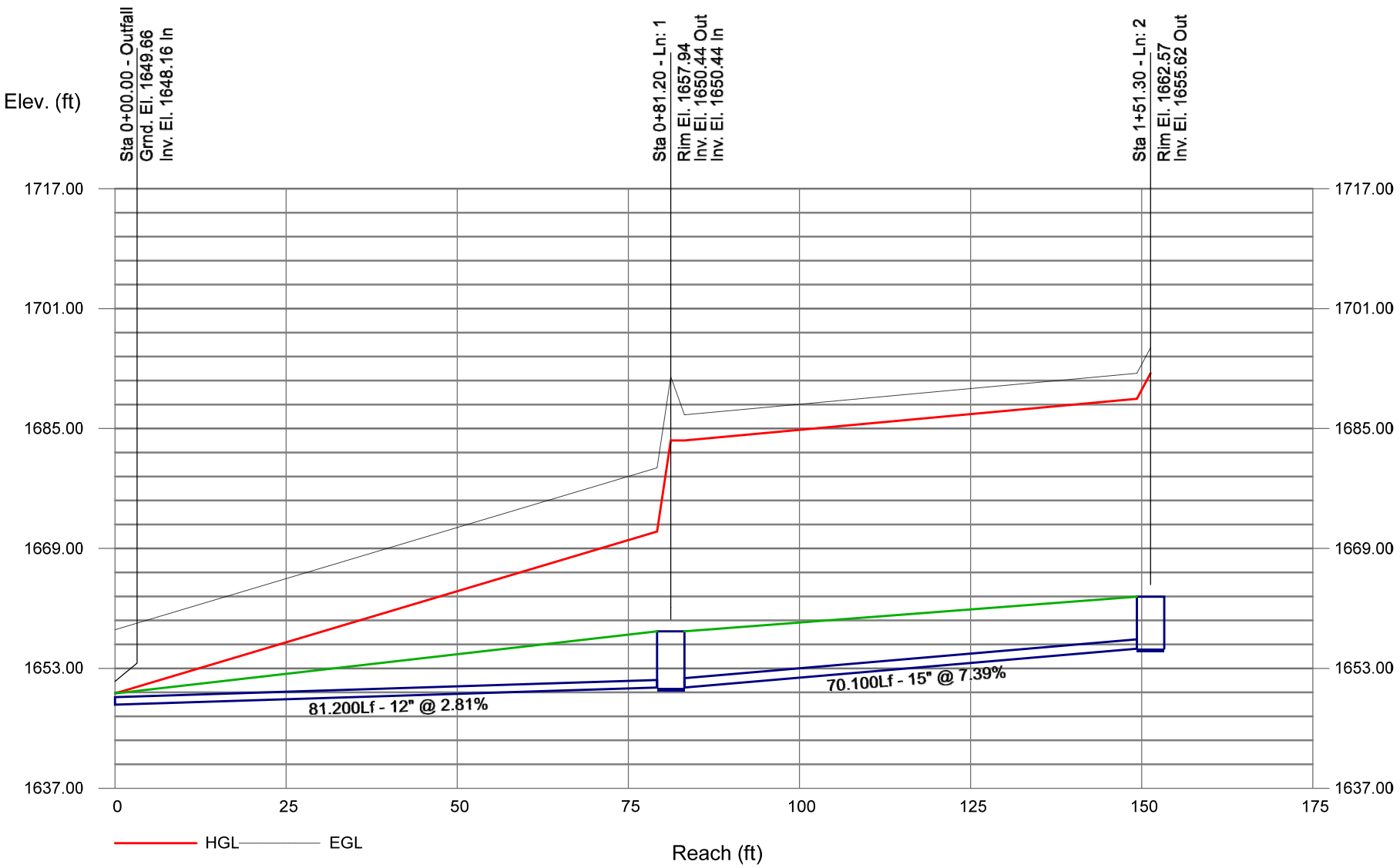
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	12	18.36	1648.16	1649.66	1.00	0.79	23.39	8.50	1658.16	26.601	81.200	1650.44	1671.26	1.00**	0.79	23.38	8.50	1679.76	26.591	26.596	21.60	1.43	12.15
2	15	18.17	1650.44	1683.41	1.25	1.23	14.81	3.41	1686.82	7.923	70.100	1655.62	1688.97	1.25**	1.23	14.81	3.41	1692.38	7.920	7.921	5.553	1.00	3.41

Project File: STA 56 to 57.stm | Number of lines: 2 | Run Date: 1/22/2025

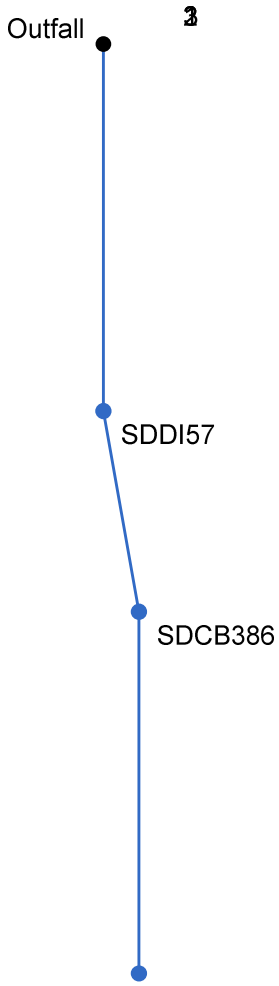
Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: STA 56 to 57.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: STA 62+50.stm	Number of lines: 3	Date: 7/15/2024

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		5.57	18	Cir	110.600	1646.71	1648.24	1.383	1647.42	1649.15	0.08	1649.15	End	Manhole
2		5.61	15	Cir	61.400	1648.24	1651.07	4.609	1649.15	1652.03	n/a	1652.03	1	Manhole
3		5.68	15	Cir	109.000	1651.07	1665.79	13.505	1652.03	1666.75	0.49	1666.75	2	DropGrate

Project File: STA 62+50.stm

Number of lines: 3

Run Date: 7/15/2024

NOTES: Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	110.600	0.00	6.35	0.00	0.00	3.37	0.0	15.6	1.7	5.57	12.35	5.87	18	1.38	1646.71	1648.24	1647.42	1649.15	1648.21	1652.99	
2	1	61.400	0.00	6.35	0.00	0.00	3.37	0.0	15.4	1.7	5.61	13.86	5.71	15	4.61	1648.24	1651.07	1649.15	1652.03	1652.99	1655.89	
3	2	109.000	6.35	6.35	0.53	3.37	3.37	15.0	15.0	1.7	5.68	23.73	5.61	15	13.50	1651.07	1665.79	1652.03	1666.75	1655.89	1669.09	

Project File: STA 62+50.stm

Number of lines: 3

Run Date: 7/15/2024

NOTES:Intensity = 6.25 / (Inlet time + 0.10) ^ 0.48; Return period =Yrs. 10 ; c = cir e = ellip b = box

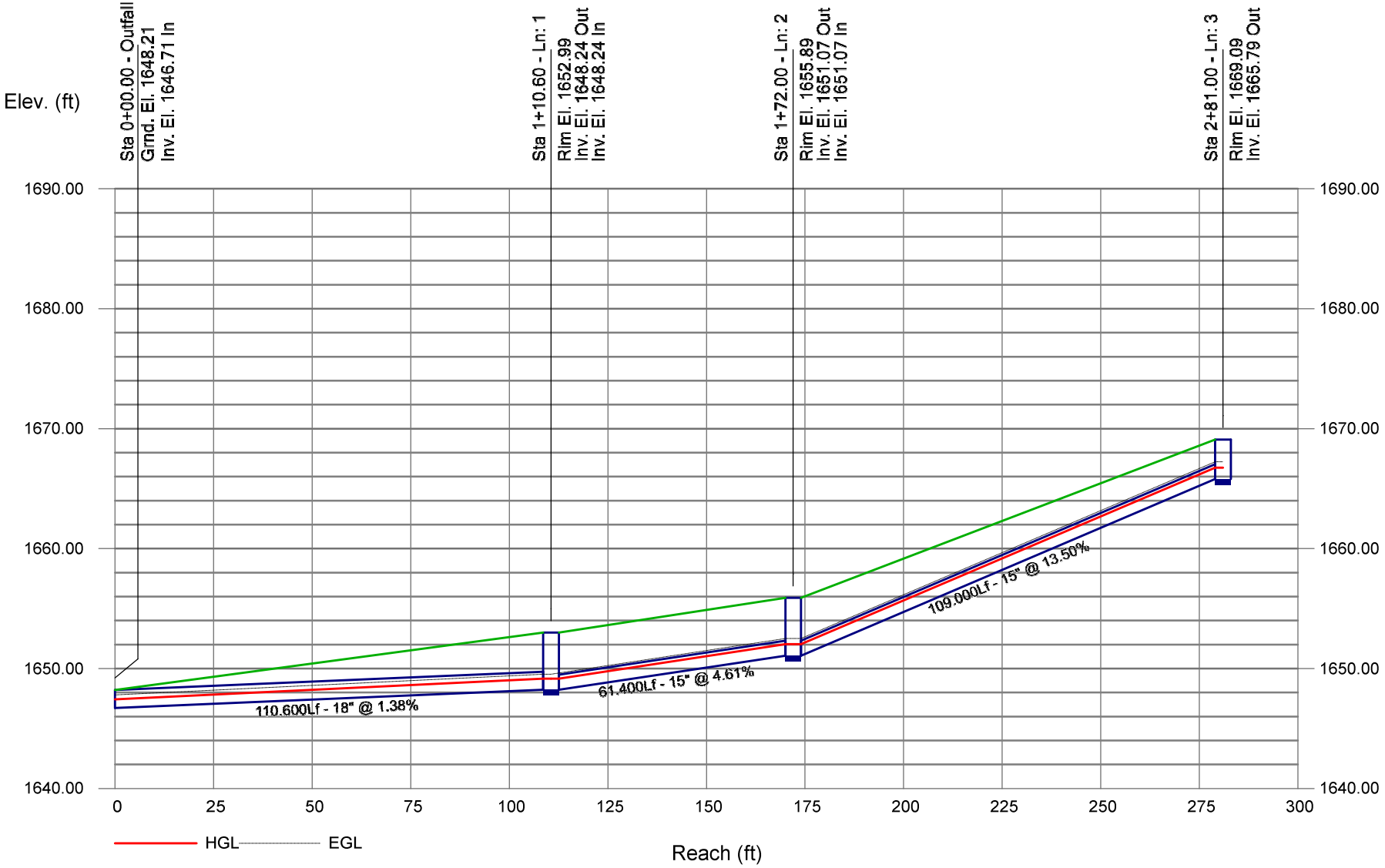
Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		0.00
2		User																		0.00
3		User																		15.00

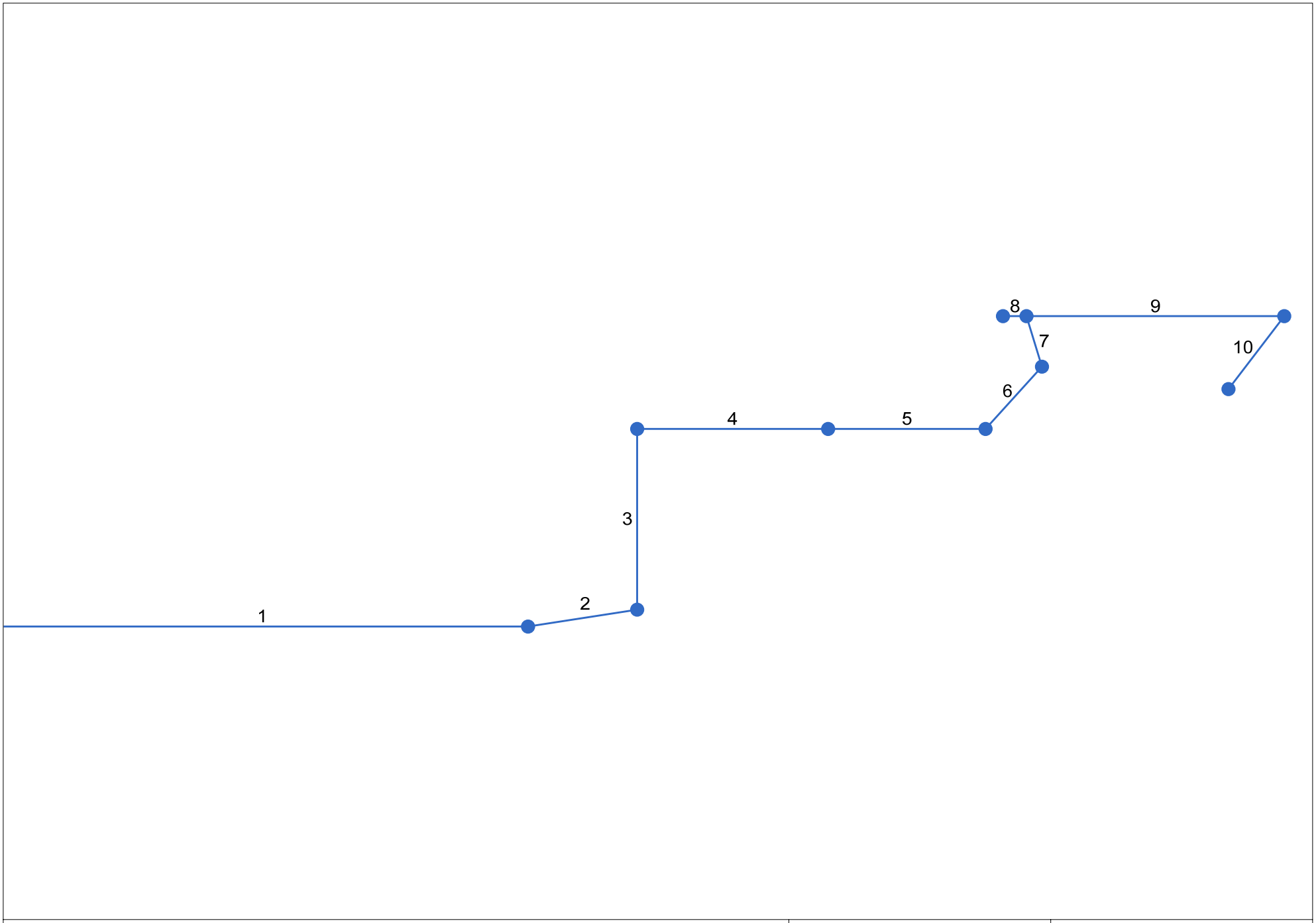
Project File: STA 62+50.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 3 | Date: 7/15/2024

Storm Sewer Profile

Proj. file: STA 62+50.stm



STA 77



Project File: STA 77.stm	Number of lines: 10	Date: 1/22/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		5.61	18	Cir	174.200	1670.90	1675.30	2.526	1678.00*	1679.69*	0.08	1679.77	End	DropGrate
2		5.56	18	Cir	36.200	1675.30	1673.50	-4.973	1679.77*	1680.12*	0.23	1680.35	1	DropGrate
3		5.51	18	Cir	59.500	1672.77	1674.20	2.403	1680.35*	1680.91*	0.23	1681.13	2	DropGrate
4		4.06	18	Cir	62.600	1674.30	1674.70	0.639	1681.13*	1681.45*	0.04	1681.49	3	DropGrate
5		4.01	18	Cir	51.600	1675.50	1677.40	3.682	1681.49*	1681.75*	0.09	1681.84	4	DropGrate
6		3.89	12	Cir	27.600	1677.40	1677.60	0.724	1681.84*	1682.97*	0.34	1683.30	5	Manhole
7		3.90	12	Cir	17.400	1677.60	1677.70	0.575	1683.30*	1684.01*	0.57	1684.59	6	DropGrate
8		0.03	12	Cir	7.700	1677.70	1678.10	5.195	1684.59*	1684.59*	0.00	1684.59	7	DropGrate
9		3.63	12	Cir	84.500	1677.70	1678.50	0.947	1684.59*	1687.58*	0.50	1688.08	7	DropGrate
10		3.49	12	Cir	30.200	1678.80	1678.09	-2.351	1688.08*	1689.07*	0.31	1689.38	9	DropGrate

STA 77 | Number of lines: 10 | Run Date: 1/22/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		5.00
3		User																		15.00
4		User																		5.00
5		User																		5.00
6		User																		5.00
7		User																		5.00
8		User																		5.00
9		User																		5.00
10		User																		15.00

STA 77 | Min. Tc used for intensity calculations = 5 min | Number of lines: 10 | Date: 1/22/2025

Hydraulic Grade Line Computations

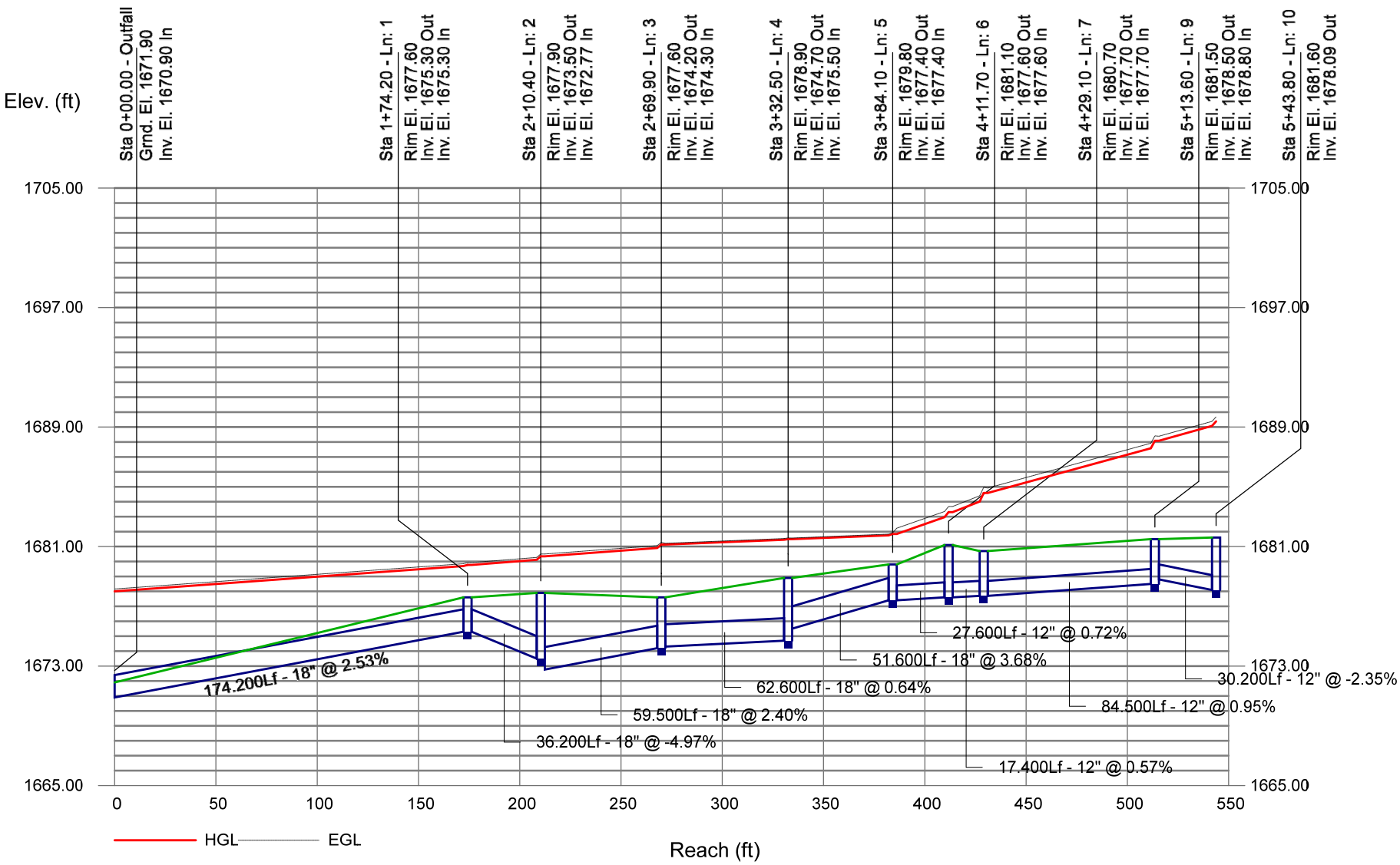
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	5.61	1670.90	1678.00	1.50	1.77	3.17	0.16	1678.16	0.972	174.200	1675.30	1679.69	1.50	1.77	3.17	0.16	1679.85	0.971	0.972	1.693	0.50	0.08
2	18	5.56	1675.30	1679.77	1.50	1.77	3.15	0.15	1679.93	0.955	36.200	1673.50	1680.12	1.50	1.77	3.14	0.15	1680.27	0.954	0.955	0.346	1.49	0.23
3	18	5.51	1672.77	1680.35	1.50	1.77	3.12	0.15	1680.50	0.940	59.500	1674.20	1680.91	1.50	1.77	3.12	0.15	1681.06	0.939	0.940	0.559	1.50	0.23
4	18	4.06	1674.30	1681.13	1.50	1.77	2.30	0.08	1681.22	0.511	62.600	1674.70	1681.45	1.50	1.77	2.30	0.08	1681.54	0.510	0.510	0.320	0.50	0.04
5	18	4.01	1675.50	1681.49	1.50	1.77	2.27	0.08	1681.57	0.498	51.600	1677.40	1681.75	1.50	1.77	2.27	0.08	1681.83	0.497	0.497	0.257	1.17	0.09
6	12	3.89	1677.40	1681.84	1.00	0.79	4.95	0.38	1682.23	4.068	27.600	1677.60	1682.97	1.00	0.79	4.95	0.38	1683.35	4.066	4.067	1.123	0.88	0.34
7	12	3.90	1677.60	1683.30	1.00	0.79	4.96	0.38	1683.69	4.083	17.400	1677.70	1684.01	1.00	0.79	4.96	0.38	1684.40	4.081	4.082	0.710	1.50	0.57
8	12	0.03	1677.70	1684.59	1.00	0.79	0.04	0.00	1684.59	0.000	7.700	1678.10	1684.59	1.00	0.79	0.04	0.00	1684.59	0.000	0.000	0.000	1.00	0.00
9	12	3.63	1677.70	1684.59	1.00	0.79	4.62	0.33	1684.92	3.546	84.500	1678.50	1687.58	1.00	0.79	4.62	0.33	1687.92	3.544	3.545	2.996	1.50	0.50
10	12	3.49	1678.80	1688.08	1.00	0.79	4.45	0.31	1688.39	3.280	30.200	1678.09	1689.07	1.00	0.79	4.45	0.31	1689.38	3.279	3.279	0.990	1.00	0.31

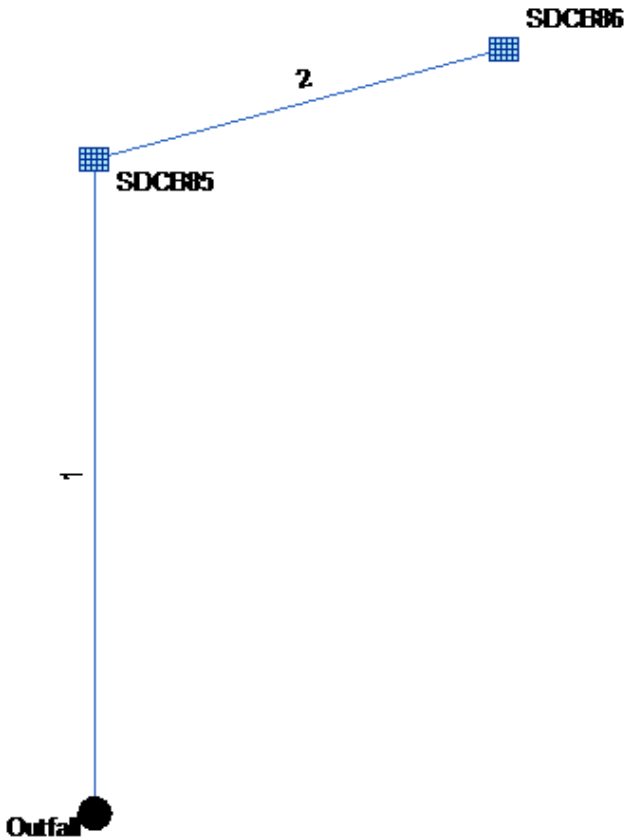
STA 77 | Number of lines: 10 | Run Date: 1/22/2025

; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: STA 77.stm





Project File: STA 85.stm	Number of lines: 2	Date: 7/15/2024

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		4.24	12	Cir	129.600	1693.41	1696.95	2.731	1694.41*	1700.68*	0.66	1701.34	End	DropGrate
2		3.88	12	Cir	84.500	1696.95	1704.83	9.325	1701.34	1705.67	n/a	1705.67 j	1	DropGrate

85

Number of lines: 2

Run Date: 7/15/2024

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	129.600	0.28	5.78	0.95	0.27	2.91	5.0	20.3	1.5	4.24	3.19	5.40	12	2.73	1693.41	1696.95	1694.41	1700.68	1701.70	1701.10	
2	1	84.500	5.50	5.50	0.48	2.64	2.64	20.0	20.0	1.5	3.88	5.89	5.24	12	9.33	1696.95	1704.83	1701.34	1705.67	1701.10	1706.83	

85

Number of lines: 2

Run Date: 7/15/2024

NOTES:Intensity = 6.25 / (Inlet time + 0.10) ^ 0.48; Return period =Yrs. 10 ; c = cir e = ellip b = box

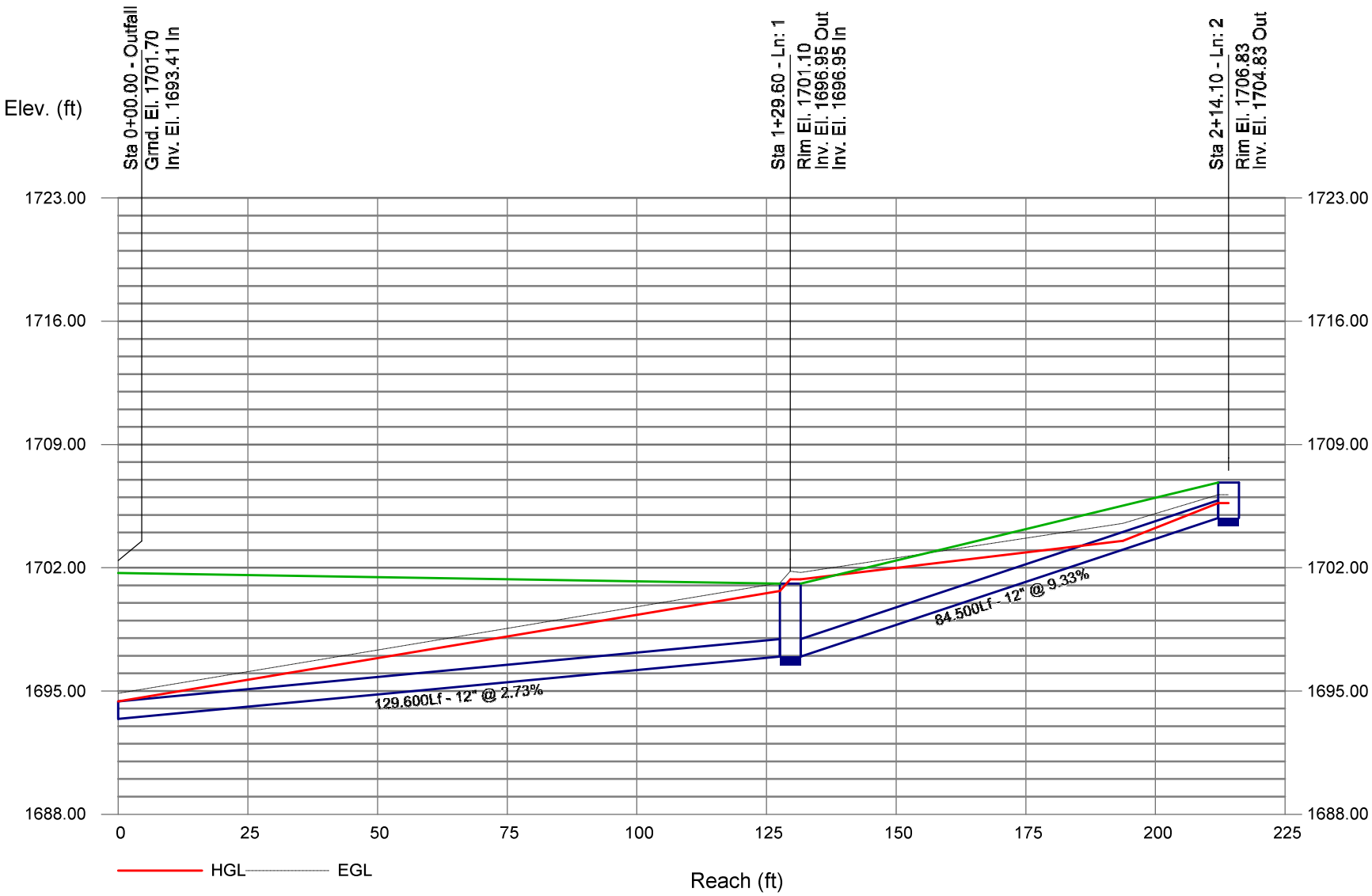
Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		20.00

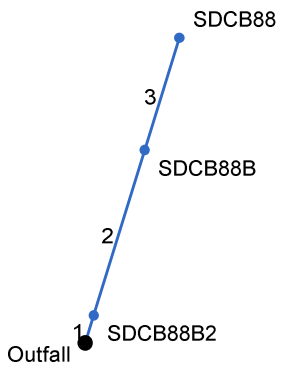
85	Min. Tc used for intensity calculations = 5 min	Number of lines: 2	Date: 7/15/2024

Storm Sewer Profile

Proj. file: STA 85.stm



STA 88



Project File: STA 88.stm	Number of lines: 3	Date: 7/1/2024

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		7.00
3		User																		5.00

STA 88 | Min. Tc used for intensity calculations = 5 min | Number of lines: 3 | Date: 7/1/2024

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	15.500	0.37	3.37	0.80	0.30	2.59	5.0	7.2	2.4	6.21	12.09	11.34	12	39.29	1693.76	1699.85	1694.29	1700.81	1694.76	1707.85	
2	1	93.200	2.70	3.00	0.74	2.00	2.30	7.0	7.0	2.4	5.58	4.74	7.10	12	6.03	1699.85	1705.47	1700.85	1708.65	1707.85	1709.97	
3	2	63.200	0.30	0.30	1.00	0.30	0.30	5.0	5.0	2.8	0.85	5.73	2.07	12	8.83	1705.47	1711.05	1709.04	1711.44	1709.97	1714.13	

STA 88 | Number of lines: 3 | Run Date: 7/1/2024

NOTES:Intensity = 6.25 / (Inlet time + 0.10) ^ 0.48; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		6.21	12	Cir	15.500	1693.76	1699.85	39.290	1694.29	1700.81	0.50	1700.81	End	DropGrate
2		5.58	12	Cir	93.200	1699.85	1705.47	6.030	1700.85*	1708.65*	0.39	1709.04	1	DropGrate
3		0.85	12	Cir	63.200	1705.47	1711.05	8.829	1709.04	1711.44	n/a	1711.44 j	2	DropGrate

STA 88

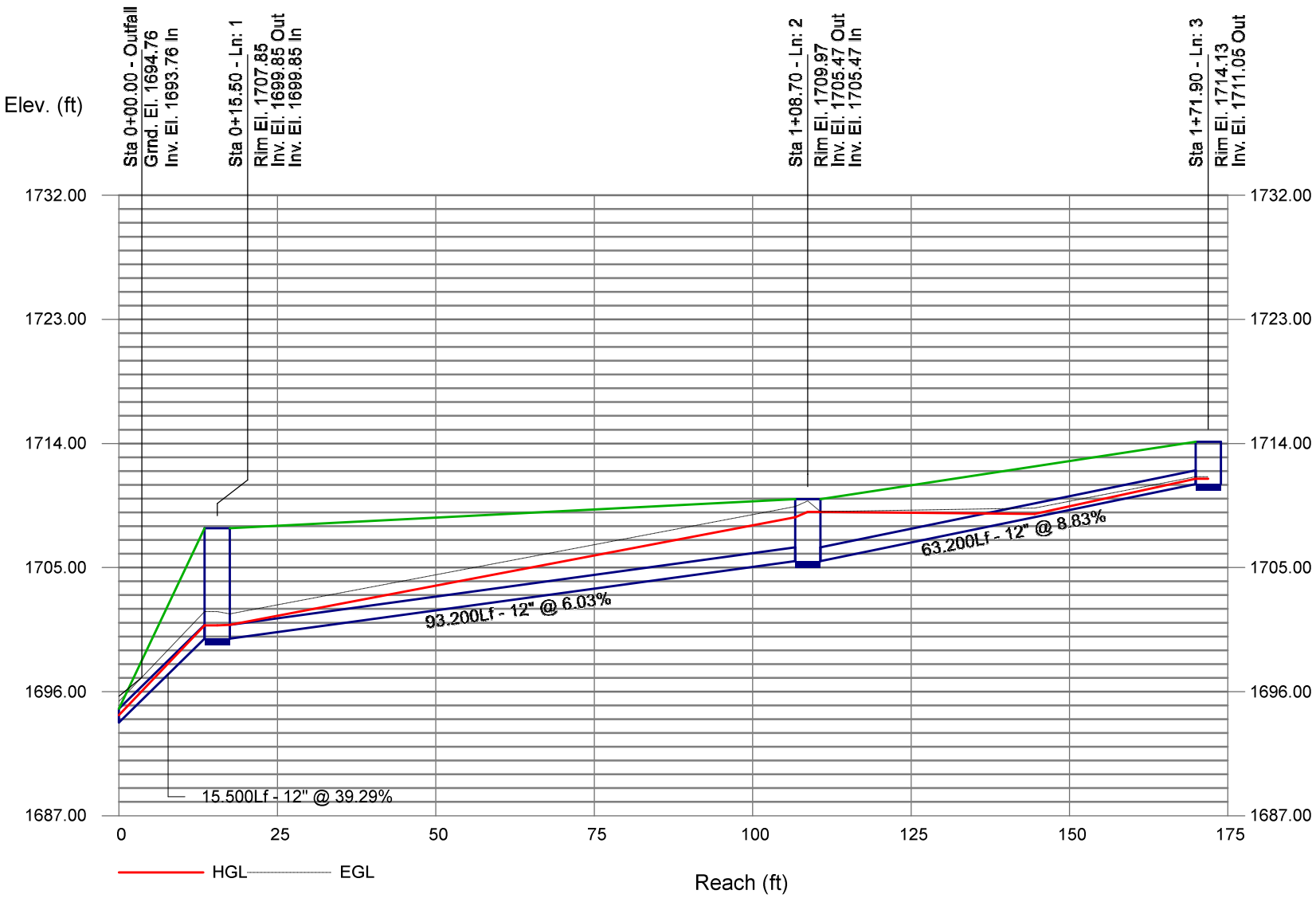
Number of lines: 3

Run Date: 7/1/2024

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Profile

Proj. file: STA 88.stm



Appendix E Spread Calculations

HDR | WRECO

Placerville Dr Bike and Pedestrian Facilities Project

Right Hand Side

Drainage Inlet Capacity and Roadway Spread Calculations

Job:

Designed by: ☑ Date: 8/26/2025

Checked by: ☑ Date: 8/26/2025

	Layout Line:			Placerville Drive		Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive
In#	Inlet Number:	(Input Data Required)		SDCB 2889		DI 12	DI 13	DI 14	DI 16	DI 17	DI 18	DI 19	DI 21	DI 23	DI 25	DI35	Bridge 3	DI 34	SDCB88
HYDROLOGY COMPUTATION:																			
St	Structure location station:	>>		38+33		45+72	46+91	49+42	52+30	53+36	53+84	54+81	56+36	57+11	62+66	70+15	74+64	81+32	87+95
N	Notes	>>	Greenville Valley Rd	<<	<<HP>>	>>	>>	>>	>>	>>	>>	>>	LP	<<	<<	<<			
	Off-site contributing watershed area (acres):	>>		0.07		1.14	2.39	0.82	4.25	0.00	2.31	0.32	0.00	12.77	5.73	0.00	0.00	0.00	0.00
	On-site contributing watershed area (acres):	>>		0.16		0.33	0.07	0.37	0.28	0.07	0.91	0.07	0.15	0.86	0.96	0.19	0.61	0.56	0.30
Ar	**Contributing watershed area (acres):**			**0.23**		**1.47**	**2.46**	**1.19**	**4.53**	**0.07**	**3.22**	**0.39**	**0.15**	**13.63**	**6.69**	**0.19**	**0.61**	**0.56**	**0.30**
C	Composite Runoff Coefficient "C":	>>		0.59		0.27	0.19	0.32	0.20	0.95	0.30	0.25	0.95	0.20	0.23	0.95	0.95	0.95	0.95
Ic	Precipitation intensity (in/hr):	>>		3.49		3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
Qa	Subarea discharge Q (ft^3/s):			0.48		1.40	1.59	1.31	3.16	0.23	3.40	0.33	0.50	9.53	5.48	0.63	2.02	1.86	0.99
qq	Previous by-pass flow (ft^3/s):	>		0.00		0.00	0.07	0.27	0.22	1.02	0.12	0.88	6.17	2.54	0.16	0.00	0.00	0.00	0.00
Qadd	Discharge added by operator (ft^3/s):	>																	
Qt	**Total discharge Q (ft^3/s):**			**0.48**		**1.40**	**1.66**	**1.58**	**3.38**	**1.24**	**3.52**	**1.21**	**6.67**	**12.07**	**5.65**	**0.63**	**2.02**	**1.86**	**0.99**
SHOULDER AND GUTTER CONFIGURATION:																			
n	Manning's n:	>>		0.016		0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.012	0.012	0.016
S	Longitudinal slope S (ft/ft):	>>		0.048		0.040	0.040	0.045	0.036	0.026	0.029	0.012	0.009	0.005	0.018	0.006	0.012	0.041	0.039
IT	Inlet type (1=grate, 2=curb opening, 3=slotted):	>>		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
LP	Longitudinal profile (1=on-grade, 2=sag):	>>		1		1	1	1	1	1	1	1	2	1	1	1	2	1	1
ID	Inlet description:	>																	
	Grate Type:	>>		24-12X		24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X
Gw	Grate width (in):	>		24.0		24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Gl	Grate length (in):	>		36.0		36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
	3 or 4 sided weir?	>		3		3	3	3	3	3	3	3	3	3	3	3	3	3	3
Lco	Curb opening length provided (ft):	>		-		-	-	-	-	-	-	-	-	-	-	-	3.00	3.00	-
Ls	Slotted drain length provided: (ft)	>		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sx	Shoulder cross-slope Sx (ft/ft):	>>		0.0541		0.0711	0.0329	0.0337	0.0364	0.0432	0.0538	0.0493	0.0382	0.0510	0.0336	0.0172	0.0200	0.0446	0.0395
Sd	Shoulder width before gutter (ft):	>>		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	10.0	10.0	10.0	10.0	4.0
W	Width of gutter from flowline (in):	>		24.0		24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
a(t)	Gutter depth from horizontal (in):	>		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Sw	Weighted Gutter cross-slope Sw (ft/ft): (S'w=Sw-Sx) (Sw=Sx if no gutter)			0.064		0.075	0.050	0.050	0.052	0.057	0.064	0.061	0.049	0.062	0.042	0.028	0.031	0.051	0.054
	Available Flooded Width (ft)	>		13.00		13.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	16.00	16.00	15.00	14.00
Tu/s	Flooded Width from flowline (ft):			2.20		2.85	4.93	4.66	6.17	4.04	5.09	4.28	-----	11.68	8.93	7.29	-----	3.75	3.65
Tu/s	**Flooded Width from flowline with gutter (ft):**			**1.98**		**2.80**	**4.60**	**4.32**	**5.94**	**3.80**	**4.98**	**4.11**	**-----**	**11.62**	**8.85**	**6.99**	**-----**	**3.64**	**3.34**
Du/s	Depth at flowline before inlet (ft):			0.13		0.21	0.18	0.18	0.25	0.19	0.29	0.23	-----	0.61	0.31	0.14	-----	0.18	0.16
Au/s	Water cross-area before inlet (ft^2):			0.13		0.29	0.38	0.35	0.67	0.34	0.69	0.44	-----	3.47	1.33	0.44	-----	0.31	0.25
Vu/s	Velocity for total discharge before inlet (ft/s):			3.85		4.88	4.35	4.53	5.01	3.67	5.14	2.75	-----	3.48	4.24	1.42	-----	6.04	4.00
Eod	Ratio of gutter depression flow to total Q (Eod):			100%		97%	82%	84%	70%	88%	76%	85%	-----	40%	51%	63%	-----	89%	93%
Se	Equivalent cross-slope (ft/ft):			0.064		0.075	0.047	0.048	0.047	0.055	0.061	0.059	-----	0.055	0.038	0.024	-----	0.050	0.053
GRATE INLETS ON-GRADE:																			
Eog	Ratio of grate frontal flow to total flow:			100%		97%	82%	84%	70%	88%	76%	85%	-----	40%	51%	63%	-----	89%	93%
Qw	Inlet frontal flow in ft^3/s (Qw): at inlet w/ gutter depression			0.48		1.35	1.36	1.33	2.35	1.10	2.68	1.02	-----	4.87	2.87	0.40	-----	1.65	0.93
Vo	Vo for effective length (P-50, Chart 5) (ft/s):			4.67		4.67	4.67	4.67	4.67	4.67	4.67	4.67	-----	4.67	4.67	4.67	-----	4.67	4.67
Rf	Fraction of frontal flow intercepted (Rf):			1.00		0.98	1.00	1.00	0.97	1.00	0.96	1.00	-----	1.00	1.00	1.00	-----	0.88	1.00
Qs	Side flow in ft^3/s (Qs):			0.00		0.05	0.30	0.25	1.03	0.15	0.84	0.18	-----	7.20	2.78	0.23	-----	0.20	0.07
Gle	Effective grate length w/ 33% clogging (in):			24		24	24	24	24	24	24	24	-----	24	24	24	-----	24	24
Rs	Fraction of side flow interception (Rs):			0%		12%	10%	9%	8%	15%	10%	24%	-----	16%	8%	30%	-----	6%	13%
E	Grate Efficiency (E):			100%		95%	84%	86%	70%	90%	75%	88%	-----	50%	55%	74%	-----	79%	94%
Qi	**Total flow intercepted (ft^3/s):**			**0.48**		**1.33**	**1.39**	**1.35**	**2.36**	**1.12**	**2.65**	**1.07**	**-----**	**6.03**	**3.10**	**0.47**	**-----**	**1.46**	**0.93**
Qb	**Grate flow-by (ft^3/s):**			**0.00**		**0.07**	**0.27**	**0.22**	**1.02**	**0.12**	**0.88**	**0.14**	**-----**	**6.03**	**2.54**	**0.16**	**-----**	**0.39**	**0.06**
SLOTTED DRAINS AND CURB OPENING INLETS ON-GRADE: (No clogging factor)																			
Lt	Length required for total interception (ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ci	Interception for provided length L (ft^3/s):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
El	Efficiency for providged length L:			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Qs	**Slotted drain or side opening flow-by (ft^3/s):**			**-----**		**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																			
	Grate Inlets																		
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	0.61	-----	-----	-----	0.27	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	0.74	-----	-----	-----	0.33	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	13.56	-----	-----	-----	7.39	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	**16.98**	-----	-----	-----	**10.34**	-----	-----
	Slotted drains																		
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	Curb opening inlets																		
d_{33}	Depth of ponding at inlet (Weir, 33% Clogging - Freeway)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (Weir, 50% Clogging City St)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Lc	Length of the vertical curve (ft):	>																	
g1	approach grade #1 (%):	>																	
g2	approach grade #2 (%):	>																	
K	K = Min(Lc/(Diff(g1,g2),167) (Table 4-7, HEC-22):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Df	Flanking inlets distance (ft):			-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

HDR | WRECO

Placerville Dr Bike and Pedestrian Facilities Project

Left Hand Side

Drainage Inlet Capacity and Roadway Spread Calculations

Job:

Designed by: GD ☑ Date: 8/26/2025

Checked by: AY ☑ Date: 8/26/2025

	Layout Line:		Green Valley Rd	Green Valley Rd	Green Valley Rd	Green Valley Rd	Green Valley Road	Green Valley Road	Green Valley Road	Green Valley Road	Green Valley Road
In#	**Inlet Number:**	(Input Data Required)	DI 5	SDCB7500	DI 9	DI 4	DI 6A	DI 6	DI 7	DI 8	DI 10
HYDROLOGY COMPUTATION:											
St	Structure location station:	>>	205+67	206+05	208+35	203+84	205+26	205+47	205+72	208+32	209+28
N	Notes		LP	LP	<<	>>	>>	>>	<<	<<	LP
	Off-site contributing watershed area (acres):	>>	0.12	0.00	0.00	0.00	0.00	0.00	0.39	0.19	0.00
	On-site contributing watershed area (acres):	>>	0.28	0.30	0.10	0.17	0.13	0.04	0.16	0.12	0.58
Ar	**Contributing watershed area (acres):**		**0.40**	**0.30**	**0.10**	**0.17**	**0.13**	**0.04**	**0.55**	**0.31**	**0.58**
C	Composite Runoff Coefficient "C":	>>	0.59	0.95	0.89	0.95	0.95	0.95	0.31	0.36	0.95
Ic	Precipitation intensity (in/hr):	>>	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
Qa	Subarea discharge Q (ft^3/s):		0.83	0.98	0.32	0.56	0.43	0.13	0.59	0.39	1.92
qq	Previous by-pass flow (ft^3/s):	>	0.00	0.00	0.00		0.00	0.00	0.00		0.00
Qadd	Discharge added by operator (ft^3/s):	>									
Qt	**Total discharge Q (ft^3/s):**		**0.83**	**0.98**	**0.32**	**0.56**	**0.43**	**0.13**	**0.59**	**0.39**	**1.92**
SHOULDER AND GUTTER CONFIGURATION:											
n	Manning's n:	>>	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
S	Longitudinal slope S (ft/ft):	>>	0.005	0.000	0.093	0.038	0.029	0.036	0.025	0.062	0.000
IT	Inlet type (1=grate, 2=curb opening, 3=slotted):	>>	1	1	1	1	1	1	1	1	1
LP	Longitudinal profile (1=on-grade, 2=sag):	>>	2	2	1	1	1	1	1	1	2
ID	Inlet description:	>									
	Grate Type:	>>	24-12X	24-12X	24-12X	24-12x	24-12x	24-12x	24-12x	24-12x	24-12x
Gw	Grate width (in):	>	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Gl	Grate length (in):	>	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
	3 or 4 sided weir?	>	3	3	3	3	3	3	3	3	3
Lco	Curb opening length provided (ft):	>	-	-	-	-	-	-	-	-	-
Ls	Slotted drain length provided: (ft)	>	-	-	-	-	-	-	-	-	-
Sx	Shoulder cross-slope Sx (ft/ft):	>>	0.0200	0.0439	0.0186	0.0237	0.0277	0.0342	0.0178	0.0307	0.0533
Sd	Shoulder width before gutter (ft):	>>	0.0	9.0	3.0	0.0	0.0	0.0	2.0	0.0	10.0
W	Width of gutter from flowline (in):	>	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
a(t)	Gutter depth from horizontal (in):	>	2.0	2.0	2.0	2.0	2.0	2.0	1.2	2.0	2.0
Sw	Weighted Gutter cross-slope Sw (ft/ft): (S'w=Sw-Sx) (Sw=Sx if no gutter)		0.083	0.051	0.044	0.083	0.083	0.083	0.034	0.083	0.058
	Available Flooded Width (ft)	>	10.00	11.00	12.00	12.00	10.00	10.00	10.00	10.00	12.00
Tu/s	Flooded Width from flowline (ft):		-----	-----	3.26	4.08	3.52	1.90	5.36	2.76	-----
Tu/s	**Flooded Width from flowline with gutter (ft):**		**-----**	**-----**	**1.89**	**1.86**	**1.77**	**1.09**	**4.79**	**1.48**	**-----**
Du/s	Depth at flowline before inlet (ft):		-----	-----	0.08	0.15	0.15	0.09	0.12	0.12	-----
Au/s	Water cross-area before inlet (ft^2):		-----	-----	0.08	0.14	0.13	0.05	0.24	0.09	-----
Vu/s	Velocity for total discharge before inlet (ft/s):		-----	-----	4.09	3.93	3.31	2.68	2.49	4.31	-----
Eod	Ratio of gutter depression flow to total Q (Eod):		-----	-----	100%	100%	100%	100%	82%	100%	-----
Se	Equivalent cross-slope (ft/ft):		-----	-----	0.044	0.083	0.083	0.083	0.031	0.083	-----
GRATE INLETS ON-GRADE:											
Eog	Ratio of grate frontal flow to total flow:		-----	-----	100%	100%	100%	100%	82%	100%	-----
Qw	Inlet frontal flow in ft^3/s (Qw): at inlet w/ gutter depression		-----	-----	0.32	0.56	0.43	0.13	0.49	0.39	-----
Vo	Vo for effective length (P-50, Chart 5) (ft/s):		-----	-----	4.67	4.67	4.67	4.67	4.67	4.67	-----
Rf	Fraction of frontal flow intercepted (Rf):		-----	-----	1.00	1.00	1.00	1.00	1.00	1.00	-----
Qs	Side flow in ft^3/s (Qs):		-----	-----	0.00	0.00	0.00	0.00	0.10	0.00	-----
Gle	Effective grate length w/ 33% clogging (in):		-----	-----	24	24	24	24	24	24	-----
Rs	Fraction of side flow interception (Rs):		-----	-----	0%	0%	0%	0%	16%	0%	-----
E	Grate Efficiency (E):		-----	-----	100%	100%	100%	100%	85%	100%	-----
Qi	**Total flow intercepted (ft^3/s):**		**-----**	**-----**	**0.32**	**0.56**	**0.43**	**0.13**	**0.50**	**0.39**	**-----**
Qb	**Grate flow-by (ft^3/s):**		**-----**	**-----**	**0.00**	**0.00**	**0.00**	**0.00**	**0.09**	**0.00**	**-----**
SLOTTED DRAINS AND CURB OPENING INLETS ON-GRADE: (No clogging factor)											
Lt	Length required for total interception (ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
Ci	Interception for provided length L (ft^3/s):		-----	-----	-----	-----	-----	-----	-----	-----	-----
El	Efficiency for providged length L:		-----	-----	-----	-----	-----	-----	-----	-----	-----
Qs	**Slotted drain or side opening flow-by (ft^3/s):**		**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:											
	Grate Inlets										
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):		0.15	0.17	-----	-----	-----	-----	-----	-----	0.27
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):		0.18	0.21	-----	-----	-----	-----	-----	-----	0.32
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):		1.81	2.07	-----	-----	-----	-----	-----	-----	3.85
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):		**2.85**	**2.91**	-----	**-----**	-----	-----	-----	-----	**4.92**
	Slotted drains										
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
	Curb opening inlets										
d_{33}	Depth of ponding at inlet (Weir, 33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (Weir, 50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----
Lc	Length of the vertical curve (ft):	>									
g1	approach grade #1 (%):	>									
g2	approach grade #2 (%):	>									
K	K = Min(Lc/(Diff(g1,g2),167) (Table 4-7, HEC-22):		-----	-----	-----	-----	-----	-----	-----	-----	-----
Df	Flanking inlets distance (ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----

Placerville Dr Bike and Pedestrian Facilities Project

Drainage Inlet Capacity and Roadway Spread Calculations

Job:

Designed by: GD ☑ Date: 8/26/2025

Checked by: AY ☑ Date: 8/26/2025

Left Hand Side

	Layout Line:		Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive
In#	**Inlet Number:**	(Input Data Required)	DI 11	DI 15	SDCB337	DI 20	DI 22	DI 24	DI 26	Bridge 1	Bridge 5	Bridge 6	SDCB523	SDCB535	SDCB535A
HYDROLOGY COMPUTATION:																
St	Structure location station:	>>	44+51	49+42	52+08	54+78	56+49	57+14	62+66	74+01	74+76	74+95	76+24	76+89	77+42
N	Notes	>>		>>	>>	>>	LP	<<	<<	>>	>>	LP	<<	<<	<<
	Off-site contributing watershed area (acres):	>>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	On-site contributing watershed area (acres):	>>	0.06	0.02	0.20	0.19	0.20	0.35	0.08	0.18	0.06	0.12	0.17	0.06	0.08
Ar	**Contributing watershed area (acres):**		**0.06**	**0.02**	**0.20**	**0.19**	**0.20**	**0.35**	**0.08**	**0.18**	**0.06**	**0.12**	**0.17**	**0.06**	**0.08**
C	Composite Runoff Coefficient "C":	>>	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ic	Precipitation intensity (in/hr):	>>	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
Qa	Subarea discharge Q (ft^3/s):		0.20	0.07	0.66	0.62	0.65	1.15	0.26	0.60	0.20	0.40	0.56	0.20	0.26
qq	Previous by-pass flow (ft^3/s):	>	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.04	0.03	0.00	0.01	0.50
Qadd	Discharge added by operator (ft^3/s):	>													
Qt	**Total discharge Q (ft^3/s):**		**0.20**	**0.07**	**0.66**	**0.62**	**0.92**	**1.15**	**0.26**	**0.60**	**0.24**	**0.43**	**0.56**	**0.21**	**0.76**
SHOULDER AND GUTTER CONFIGURATION:																
n	Manning's n:	>>	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
S	Longitudinal slope S (ft/ft):	>>	0.039	0.058	0.040	0.013	0.002	0.005	0.022	0.010	0.002	0.004	0.003	0.019	0.018
IT	Inlet type (1=grate, 2=curb opening, 3=slotted):	>>	1	1	1	1	1	1	1	1	1	1	1	1	1
LP	Longitudinal profile (1=on-grade, 2=sag):	>>	1	1	1	1	2	1	1	1	1	1	1	1	1
ID	Inlet description:	>													
	Grate Type:	>>	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X	24-12X
Gw	Grate width (in):	>	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Gl	Grate length (in):	>	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
	3 or 4 sided weir?	>	3	3	3	3	3	3	3	3	3	3	3	3	3
Lco	Curb opening length provided (ft):	>	-	-	-	-	-	-	-	-	-	-	-	-	-
Ls	Slotted drain length provided: (ft)	>	-	-	-	-	-	-	-	-	-	-	-	-	-
Sx	Shoulder cross-slope Sx (ft/ft):	>>	0.0601	0.0314	0.0363	0.0271	0.0518	0.0370	0.0444	0.0397	0.0461	0.0597	0.0610	0.0526	0.0694
Sd	Shoulder width before gutter (ft):	>>	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
W	Width of gutter from flowline (in):	>	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
a(t)	Gutter depth from horizontal (in):	>	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Sw	Weighted Gutter cross-slope Sw (ft/ft): (S'w=Sw-Sx) (Sw=Sx if no gutter)		0.068	0.049	0.052	0.046	0.062	0.052	0.057	0.054	0.059	0.068	0.068	0.063	0.074
	Available Flooded Width (ft)	>	15.00	15.00	17.00	20.00	15.00	15.00	15.00	16.00	16.00	16.00	14.00	14.00	14.00
Tu/s	Flooded Width from flowline (ft):		1.53	1.42	3.28	4.74	-----	5.98	2.28	3.85	3.37	3.19	3.65	1.95	2.68
Tu/s	**Flooded Width from flowline with gutter (ft):**		**1.42**	**1.08**	**2.87**	**4.26**	**-----**	**5.75**	**1.94**	**3.55**	**3.12**	**3.07**	**3.56**	**1.75**	**2.61**
Du/s	Depth at flowline before inlet (ft):		0.10	0.05	0.14	0.15	-----	0.24	0.11	0.17	0.17	0.20	0.23	0.11	0.19
Au/s	Water cross-area before inlet (ft^2):		0.07	0.03	0.18	0.28	-----	0.64	0.11	0.28	0.25	0.30	0.40	0.10	0.25
Vu/s	Velocity for total discharge before inlet (ft/s):		2.90	2.35	3.66	2.20	-----	1.78	2.40	2.14	0.95	1.44	1.41	2.19	3.08
Eod	Ratio of gutter depression flow to total Q (Eod):		100%	100%	97%	86%	-----	71%	100%	91%	95%	95%	90%	100%	98%
Se	Equivalent cross-slope (ft/ft):		0.068	0.049	0.052	0.043	-----	0.048	0.057	0.053	0.058	0.067	0.068	0.063	0.074
GRATE INLETS ON-GRADE:																
Eog	Ratio of grate frontal flow to total flow:		100%	100%	97%	86%	-----	71%	100%	91%	95%	95%	90%	100%	98%
Qw	Inlet frontal flow in ft^3/s (Qw): at inlet w/ gutter depression		0.20	0.07	0.64	0.54	-----	0.82	0.26	0.54	0.22	0.40	0.51	0.21	0.74
Vo	Vo for effective length (P-50, Chart 5) (ft/s):		4.67	4.67	4.67	4.67	-----	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67
Rf	Fraction of frontal flow intercepted (Rf):		1.00	1.00	1.00	1.00	-----	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Qs	Side flow in ft^3/s (Qs):		0.00	0.00	0.02	0.09	-----	0.33	0.00	0.05	0.01	0.02	0.06	0.00	0.01
Gle	Effective grate length w/ 33% clogging (in):		24	24	24	24	-----	24	24	24	24	24	24	24	24
Rs	Fraction of side flow interception (Rs):		0%	0%	14%	26%	-----	36%	0%	31%	68%	53%	55%	0%	24%
E	Grate Efficiency (E):		100%	100%	97%	90%	-----	81%	100%	94%	98%	97%	95%	100%	99%
Qi	**Total flow intercepted (ft^3/s):**		**0.20**	**0.07**	**0.65**	**0.56**	**-----**	**0.93**	**0.26**	**0.56**	**0.23**	**0.42**	**0.54**	**0.21**	**0.75**
Qb	**Grate flow-by (ft^3/s):**		**0.00**	**0.00**	**0.02**	**0.06**	**-----**	**0.21**	**0.00**	**0.04**	**0.00**	**0.01**	**0.03**	**0.00**	**0.01**
SLOTTED DRAINS AND CURB OPENING INLETS ON-GRADE: (No clogging factor)																
Lt	Length required for total interception (ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ci	Interception for provided length L (ft^3/s):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
El	Efficiency for providged length L:		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Qs	**Slotted drain or side opening flow-by (ft^3/s):**		**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**	**-----**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																
	Grate Inlets															
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	0.16	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	0.20	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	1.95	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	**2.60**	-----	-----	-----	-----	-----	-----	-----	-----
	Slotted drains															
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	Curb opening inlets															
d_{33}	Depth of ponding at inlet (Weir, 33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (Weir, 50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Lc	Length of the vertical curve (ft):	>													
g1	approach grade #1 (%):	>													
g2	approach grade #2 (%):	>													
K	K = Min(Lc/(Diff(g1,g2),167) (Table 4-7, HEC-22):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Df	Flanking inlets distance (ft):		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

HDR | WRECO

Placerville Dr Bike and Pedestrian Facilities Project

Drainage Inlet Capacity and Roadway Spread Calculations

Job:

	Layout Line:			Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive	Placerville Drive
In#	**Inlet Number:**			SDCB78	DI 28	DI 30	DI31	DI31A
		(Input Data Required)						
HYDROLOGY COMPUTATION:								
St	Structure location station:	>>		78+30	81+92	84+65	85+89	86+50
N	Notes	>>	SDCB535A	<<	<<	<<	<<	<<
	Off-site contributing watershed area (acres):	>>		0.00	0.00	0.00	0.00	4.63
	On-site contributing watershed area (acres):	>>		0.34	0.25	0.25	0.04	0.46
Ar	**Contributing watershed area (acres):**			**0.34**	**0.25**	**0.25**	**0.04**	**5.09**
C	Composite Runoff Coefficient "C":	>>		0.95	0.95	0.95	0.95	0.40
Ic	Precipitation intensity (in/hr):	>>		3.49	3.49	3.49	3.49	2.23
Qa	Subarea discharge Q (ft^3/s):			1.13	0.82	0.83	0.13	4.59
qq	Previous by-pass flow (ft^3/s):	>		0.04	0.22	0.88	1.76	
Qadc	Discharge added by operator (ft^3/s):	>						
Qt	**Total discharge Q (ft^3/s):**			**1.17**	**1.04**	**1.71**	**1.89**	**4.59**
SHOULDER AND GUTTER CONFIGURATION:								
n	Manning's n:	>>		0.016	0.016	0.016	0.016	0.016
S	Longitudinal slope S (ft/ft):	>>		0.019	0.039	0.042	0.040	0.038
IT	Inlet type (1=grate, 2=curb opening, 3=slotted):	>>		1	1	1	1	1
LP	Longitudinal profile (1=on-grade, 2=sag):	>>		1	1	1	1	1
ID	Inlet description:	>						
	Grate Type:	>>		24-12X	24-12X	24-12X	24-12X	24-12X
Gw	Grate width (in):	>		24.0	24.0	24.0	24.0	24.0
Gl	Grate length (in):	>		36.0	36.0	36.0	36.0	36.0
	3 or 4 sided weir?	>		3	3	3	3	3
Lco	Curb opening length provided (ft):	>		-	-	-	-	-
Ls	Slotted drain length provided: (ft)	>		-	-	-	-	-
Sx	Shoulder cross-slope Sx (ft/ft):	>>		0.0468	0.0488	0.0404	0.0075	0.0358
Sd	Shoulder width before gutter (ft):	>>		4.0	4.0	4.0	4.0	4.0
W	Width of gutter from flowline (in):	>		24.0	24.0	24.0	24.0	24.0
a(t)	Gutter depth from horizontal (in):	>		2.0	2.0	2.0	2.0	2.0
Sw	Weighted Gutter cross-slope Sw (ft/ft): (S'w=Sw-Sx) (Sw=Sx if no gutter)			0.059	0.060	0.055	0.033	0.052
	Available Flooded Width (ft)	>		14.00	14.00	14.00	14.00	14.00
Tu/s	Flooded Width from flowline (ft):			3.99	3.25	4.34	13.01	6.90
Tu/s	**Flooded Width from flowline with gutter (ft):**			**3.79**	**3.04**	**4.08**	**12.06**	**6.70**
Du/s	Depth at flowline before inlet (ft):			0.20	0.17	0.19	0.14	0.27
Au/s	Water cross-area before inlet (ft^2):			0.36	0.25	0.37	0.60	0.83
Vu/s	Velocity for total discharge before inlet (ft/s):			3.24	4.18	4.67	3.17	5.50
Eod	Ratio of gutter depression flow to total Q (Eod):			88%	95%	86%	50%	64%
Se	Equivalent cross-slope (ft/ft):			0.058	0.060	0.053	0.020	0.046
GRATE INLETS ON-GRADE:								
Eog	Ratio of grate frontal flow to total flow:			88%	95%	86%	50%	64%
Qw	Inlet frontal flow in ft^3/s (Qw): at inlet w/ cutter depression			1.03	0.99	1.47	0.94	2.95
Vo	Vo for effective length (P-50, Chart 5) (ft/s):			4.67	4.67	4.67	4.67	4.67
Rf	Fraction of frontal flow intercepted (Rf):			1.00	1.00	1.00	1.00	0.93
Qs	Side flow in ft^3/s (Qs):			0.14	0.05	0.24	0.95	1.64
Gle	Effective grate length w/ 33% clogging (in):			24	24	24	24	24
Rs	Fraction of side flow interception (Rs):			19%	13%	10%	8%	7%
E	Grate Efficiency (E):			90%	96%	87%	53%	62%
Qi	**Total flow intercepted (ft^3/s):**			**1.06**	**0.99**	**1.49**	**1.01**	**2.83**
Qb	**Grate flow-by (ft^3/s):**			**0.11**	**0.04**	**0.22**	**0.88**	**1.76**
SLOTTED DRAINS AND CURB OPENING INLETS ON-GRADE:	**(No clogging factor)**							
Lt	Length required for total interception (ft):			-----	-----	-----	-----	-----
Ci	Interception for provided length L (ft^2/s):			-----	-----	-----	-----	-----
El	Efficiency for providged length L:			-----	-----	-----	-----	-----
Qs	**Slotted drain or side opening flow-by (ft^3/s):**			**-----**	**-----**	**-----**	**-----**	**-----**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:								
	Grate Inlets							
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):			-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):			-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):			-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):			-----	-----	-----	-----	-----
	Slotted drains							
d_{33}	Depth of ponding at inlet (33% Clogging - Freeway)(ft):			-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (50% Clogging City St)(ft):			-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):			-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):			-----	-----	-----	-----	-----
	Curb opening inlets							
d_{33}	Depth of ponding at inlet (Weir, 33% Clogging - Freeway)(ft):			-----	-----	-----	-----	-----
d_{50}	Depth of ponding at inlet (Weir, 50% Clogging City St)(ft):			-----	-----	-----	-----	-----
w_{33}	Ponded width at inlet (33% Clogging - Freeway)(ft):			-----	-----	-----	-----	-----
w_{50}	Ponded width at inlet (50% Clogging City St)(ft):			-----	-----	-----	-----	-----
Lc	Length of the vertical curve (ft):	>						
g1	approach grade #1 (%):	>						
g2	approach grade #2 (%):	>						
K	K = Min(Lc/Diff(g1,g2),167) (Table 4-7, HEC-22):			-----	-----	-----	-----	-----
Df	Flanking inlets distance (ft):			-----	-----	-----	-----	-----

Appendix F Ditch Calculations

Normal Depth Calculations for Channels using Manning's Equation

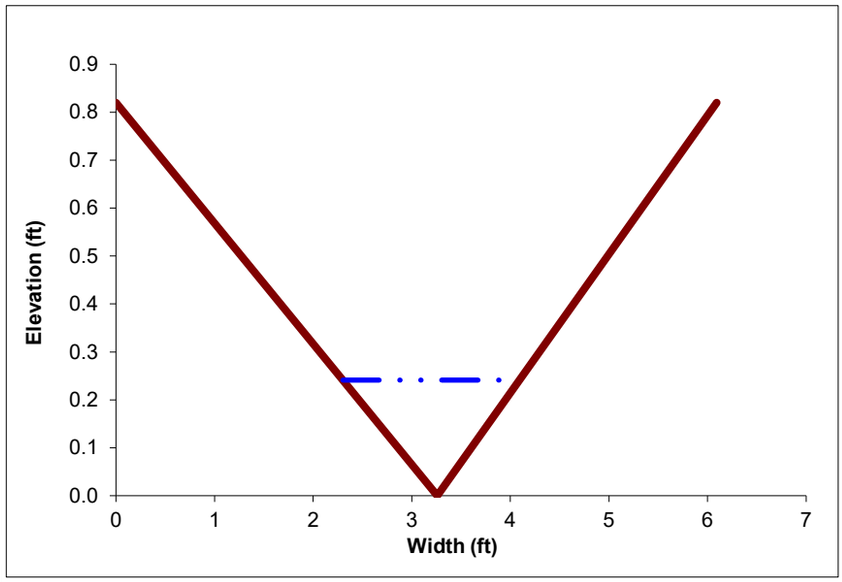
Station: **Ditch**

Q25

Input Values		
Height	**0.82**	ft
Width	**0**	ft
Left Side Slope	**4.0**	:1 (h:v)
Right Side Slope	**3.45**	:1 (h:v)
Mannings	**0.25**	
Slope	**0.003**	ft/ft
Design Flow	**2.21**	cfs

Normal Depth for Channel		
Depth	0.241	ft
Cross Sectional Area	0.22	ft^2
Wetted Perimeter	1.86	ft
Hydraulic Radius, Rh	0.12	ft
Velocity	0.08	ft/s
Flow for 25-yr Storm	0.02	cfs
Goal Seek	**2.19**	

Length	**238.00**	ft
Intensity	**3.49**	in/hr



Factor of Safety 2

Tributary area for paved areas	
27,575	square feet
0.6	acre
1	C for paved areas

Tributary area for unpaved areas	
0	square feet
0.0	acre
0.41	C for unpaved areas

Composite area	
27,575	square feet
0.6	acre
1.00	C for composite areas

Energy head (He)	0.24	ft
Required Freeboard	0.05	ft
Design Freeboard	0.58	ft
Passes Freeboard?	Yes	
HRT	51.10	min

Subcritical Flow